***Addendum to Chapter 9: Faunal Distributions***

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This section provides more quantitative and qualitative details on the provenience of the faunal remains from excavation units at all sites. All references, figures and tables pertain to Chapter 9 in the published book Dillehay (2016). The methodology of analysis is presented in Chapter 9.

***Faunal Remains from Phase I***

Phase I has been redefined to include both the Late Pleistocene and Early Holocene occupations (see Chapter 6). Phase I dates from ~14,530-~7541 cal BP and is divided into two subphases, one pertaining to the late Pleistocene period and the other to the early Holocene period.

**Phase I: Faunal Remains from the Late Pleistocene and Early Holocene, ~14,530-7541 cal BP.**

The faunal counts from both the Late Pleistocene and the Early Holocene are shown separately on Table 9.2. There are several traces of Late Pleistocene occupation (see Chapters 6 and 7). They are not continuous, but it is likely there was a mobile hunting/foraging population both in the lower Chicama Valley and on the littoral, including sites on the continental shelf which are now under water. Occupational evidence in the form of scattered midden or hearths is ephemeral. Recovery of this evidence was hampered by widespread removal of the original terrace surface by later occupations, by the construction of the mound at Huaca Prieta, and by the small areas which could be exposed through the layers of the deep Huaca Prieta and Paredones mounds (see Chapters 6 and 7).

At the time of the earliest dates, the sea level was still some 60m lower than at present and the edge of the ocean was ~16-18 km west of the present-day shoreline, no great distance for a mobile hunting and foraging population (Fairbanks 1989). We only have hints from the faunal remains of what marine and terrestrial resources a foraging population might have utilized. The faunal remains left at these camps indicate a broad use of the resources of the littoral and adjacent inland areas. The early and later faunal remains in the Chicama collection also suggest that sea lions, a more fixed, if seasonal, resource, were consistently taken. Mollusks were food resources, but their small quantity suggests they were a minor part of the diet. Sharks, probably young and pre-adult, trapped in meandering estuarine channels and in the wetlands by seasonal high tides, could be easily taken in shallow water. This pattern was also seen at some inland sites in the Nanchoc, Chaman, and Jequetepeque drainages to the north, where Pleistocene foragers made periodic visits to the seacoast, returning with shells and, perhaps, dried fish (Dillehay 2011a). Bony fish of the estuary and Neritic zones are either not present or uncommon. In addition to the plant resources of the dry forest on the valley margins and inland, there were faunal resources such as deer, perhaps guanaco, and land birds. Deer could have found browse along the perennial vegetation of the riverbanks and on the fringes of the dense algarrobo forests (Netherly 2011a; see Chapters 4 and 5).

There is evidence for repeated, transitory visits to the littoral in the three excavation units that reached Late Pleistocene deposits on and below the surface of the Sangamon terrace. These were: Unit 15/21 (Unit 15 is the portion excavated to Pleistocene levels from the bottom of the sunken circular plaza on the south side of the mound at Huaca Prieta; Unit 21 lies within it); Test Pit 22 lies on the eastern side of the Huaca Prieta mound between it and the edge of the wetland; and Unit 9 lies at the southeastern edge of the Huaca Prieta mound between it and the wetland (see Fig. 3.1). In Table 9.3 and the tables which follow with data from Phases II through V, the fauna are listed by macro groups: The Invertebrates, which include the Mollusks are divided intoLimpets, Marine Snails, Freshwater Snails and Bivalves. Crustaceans are represented by Barnacles, Marine Crabs and Freshwater Crabs. These are followed by Sea Urchins (Echinoderms), and Ascidians (Sea Squirts). Vertebrates include Sharks and Bony Fish, Marine Birds, Land Birds, and Marine and Terrestrial Mammals.

The faunal remains from all three units are broken and burned. Mollusks are represented by limpets in all Late Pleistocene units. The limpets (*Fissurella* sp.), a marine snail, are found on rocks in the Upper Tidal Zone where they are efficient grazers on algae. Their shells are very strong and were sought and used as scrapers (Dillehay, personal communication, 2014); through time they may have acquired ritual significance as well, as suggested by their occasional presence as tomb offerings. Also noteworthy are two other marine gastropods: *Tegula atra*, a black snail, and *Thais chocolata,* a brown snail*.* Both are found in the Intertidal Zone at a greater depth than the limpets (see Table 9.2). Both are edible but what is most significant is that interest in these species persists through all the later phases where they appear to be not only a desirable food item, but also to have persistent ritual and symbolic significance (see Chapters 7 and 9). Bivalves, represented by the clam *Protothaca thaca* are present in modest quantity in Unit 9 and Test Pit 22. Found on sandy bottoms, these clams from the Intertidal Zone are easy to harvest with a digging stick. The shell may have been utilized as a tool as well.

None of the early sites show remains of bony fish, suggesting that some Late Pleistocene foragers lacked the opportunity and/or the technology to capture them. With this exception, all the major groups of animals noted in Table 9.1 are represented. Sharks are present in Units 9 and 15/21, but absent in Test Pit 22. The violet crab, *Platyxanthus orbignyi,* was a food item available in rocky pools of the Supratidal and Intertidal zones. Sharks of species known to tolerate the brackish waters of the estuary channels and the wetlands are found in Units 9 and 15/21, but are absent in Test Pit 22. Marine birds, such as gulls (*Larus* sp.) and cormorants (*Phalacrocorax bougainvillii*), which habitually nest on the littoral were taken as were sea lions (*Otaria* sp.), whose rookeries were also on the shore near the water. Land birds such as the Scrub Blackbird (*Dives warszewiczi*) and mammals such as the White-tailed or Virginia deer (*Odocoileus* *virginianus*) were also hunted.

Two sharks, the tope or school shark (*Galeorhinus* sp.) and the requiem shark (*Carcharhinus* sp.), were recovered from Units 9 and 15/21. Adult requiem sharks are large, two to three meters in length, and are found far out to sea where they consume schooling fish like anchovy (*Engraulis ringens*), sardine (*Sardinops sagax*), and jack mackerel (*Trachurus* sp.). They use warm, shallow, coastal waters as nursery areas; females, which reproduce every two years, carry their young for a year and travel to coastal waters to give birth to live young. Females seek out protected bays, shallow inlets, and open beaches with abundant food for the young sharks. Births are more common in the austral spring and summer when food is abundant.The waters off the Chicama coast were nursery zones for these prolific sharks with a tolerance for brackish water. Both species enter estuaries and shallow inlets where they can be easily taken.

Unit 9 and Test Pit 22 each had one scrub blackbird (*Dives warszewiczi*). This bird lives in open woodland and at the edge of grassy areas. The bones were broken and burned, indicating they had been eaten. The cormorant (*Phalacrocorax bougainvillii*) is a marine bird that nests in great flocks in rookeries on rocky points and in other protected areas along the shore. The seagull *(Larus* sp.) nests in pairs on the beach. Cormorants can be grabbed while nesting or taken in flight by slings or bolas. The gulls are more wary and may have required a weapon like a sling.

Like the shore birds, the sea lions (*Otaria flavescens*), which today are found on the off-shore islands and certain protected rocky points of the littoral, must have had immense numbers. While the cormorants and gulls are found in the region year round; sea lions give birth in the austral spring and early summer (December to early February). As discussed in Chapters 4 and 9, the presence of sea lions may have been seasonal. Most bones recovered are of sub-adults and medium-sized females, the latter suggesting they were taken in the austral summer.

The sea lions and cormorants appear to have been attractive prey, together with the sharks found in estuaries and brackish lagoons. Assuming the immense numbers of sea lions and sea birds that were present when competition from humans was low, the rookeries of both would have been within a reasonable distance. The shark species taken move inland along estuaries and brackish watercourses or lagoons. Only the deer are terrestrial, but these may have browsed along the river and other watercourses in the lower valley. Of interest are the mollusks. While bivalves are present, the numbers do not suggest large-scale consumption. *Protothaca thaca* is a clam, easily dug from the sands of the intertidal zone. The keyhole limpets (*Fissurella* sp.) are found on rocks in the upper tidal zone. They were probably sought for their shells or as food. However, the marine snails (*Tegula atra* and *Thais chocolata*) are found on rocks in the intertidal and subtidal zones, requiring entry into the sea to some depth, even at low tide. Given the importance of these snails in later periods, their presence here may be significant.

For Late Pleistocene foragers and hunters, it is clear that the southern end of the Sangamon terrace was a desirable location. Some of the resources were available year round, but the presence of sea lions, taken in large quantity, suggests some occupations occurred between December and April or May, when these marine mammals gave birth and raised the young. Cormorants are also more abundant during these months when they, too, are nesting and feeding young. Not enough is known about the biology of the sharks to understand if their presence is seasonal. What is known is that both sharks are normally pelagic; females would probably have been more abundant in the austral spring and summer. The sharks that were taken may have been juveniles. The violet stone crab is a prolific breeder year round and is commonly available on rocky shores.

Finally, the white-tailed deer (*Odocoileus virginianus*), found in the Late Pleistocene and Early Holocene camps on the terrace, are also present in small numbers in later phases. This indicates that both cover and browse for these animals were present in the lower valley. They would have obtained fresh water from the wetlands and river channels. Although columnar cactus is present, deer can knock them over and break open the body with their hooves to expose the succulent pulp (Netherly, personal observation). This part of the lower valley would have supported a considerable year-round deer population at this early date.

**Faunal Remains from the Early Holocene Occupation: ~11,000-7541 cal BP**

The faunal material for the Early Holocene comes from Units 2, 3, and 9 and HP-3, all on or at the foot of the eastern side of the Huaca Prieta mound. Material was also obtained from the off-mound domestic unit, Unit 16, just north of the mound (see Figure 3.1; Table 9.2). Therange of species recovered for the earlier part of the Early Holocene, dated between roughly 11,000 and 9000 calibrated years ago, is similar to the Late Pleistocene material and indicates that the environmental zones had not changed substantially. The configuration of the rocky reefs and sandy bottoms may have been different, but the species recovered suggest that a mosaic littoral with both biotopes was present.

It is reasonable to assume that there are discernible changes from the general hunting/fishing and foraging paradigm seen in the Late Pleistocene and Early Holocene materials to patterns which are precursors to those seen in Phase II, the beginning of mound construction and its ritual use. The expectation is that the mound may have been built in a place that was already a locality of ritual significance; it may be that the later faunal remains from the early Holocene layers reflect the beginning of these patterns.

There are no molluscan fauna reported from Unit 2. Keyhole Limpets (*Fissurella* spp.) are found in Unit 9, where there are a total of 19 and in Unit 16 where there are 3, and in Unit 3 where there is only one. Additionally, in Unit 16 there is 1 true limpet (*Collisella orbignyi*). Presumably, as with the other snails, the meat was consumed; the shells may have been utilized.

The marine snails, *Tegula atra* and *Thais chocolata*, found in the intertidal zone, are present in Units 3, 9, and 16. *Tegula atra* is also present with 1 example in HP-3, but *T. chocolata* is not. The bivalves, both mussels from rocky substrates and clams from sandy bottoms, are present in Unit 3, HP-3, and Unit 9 with a frequency similar to the numbers in the late Pleistocene layers and does not suggest regular consumption. Unit 16, in contrast not, only has more specimens, it covers a much wider range of species of both mussels and clams, anticipating the patterns to be found more generally in subsequent phases. The violet crab (*Platyxanthus orbignyi*) is present with 15 specimens in Unit 16 and is absent in the other units.

Sharks are the principal faunal remains in Unit 2 where there are 13 requiem sharks (Carcharhinidae family), a total of 9 *Carcharhinus* sp., 19 *Sphyrna* (hammerhead shark), and 2 thresher or fox shark *(Alopias vulpinas*). There are 2 examples of the school shark, *Galeorhinus galeus* in Unit 9. In Unit 16, there were total of 57 requiem sharks with 23 in the younger layer and 34 in the older one. All of these sharks are associated with the estuary or the wetland lagoons. Bony fish are represented by 2 anchovy (*Engraulis ringens*) from Unit 2, perhaps an offering. Two fish from the Sciaenidae family and *Sciaena* *deliciosa* with 17 specimens in Layer 11 and 9 in Layer 13were found in Unit 16. These are demersal fish found in the estuary and near shore which are excellent eating. They remain important throughout the later history of Huaca Prieta and may have been used ritually in later times. Cormorant (*Phalacrocorax bougainvillii*) and seagulls (*Laru*s sp.) are present in Unit 2, where there is a total of 4; in Unit 9, there are 2 cormorants; and in Unit 16, there are 7 gulls, 7 pelicans and 6 cormorants for Layer 11 and 26 cormorants, one gull, and one booby (*Sula variegata*) for Layer 13. Sea lions were present with 4 specimens in Unit 9, but 18 in each of the contexts from Unit 16, where again this pattern looks forward to that of the later phases. Procuring prey beyond using a sling or club would not have been difficult because the sea lions are not agile on land and the birds, packed into dense nesting areas can be seized before they take flight. This is hunting akin to collection and very different from hunting the fleet-footed white-tailed deer.

**Phase II: ~7541-6538 cal BP**

During Phase I, we assumed that protein acquisition was for consumption. However, we have found that some species, particularly of mollusks, but also some species of bony fish, appear in patterns that suggest ritual use as well. Once the construction of the mound had begun at Huaca Prieta in Phase II, we looked for divergences from the consumption pattern recovered in Phase I. There are also a number of anomalies in Phase II consumption that do not recur in the later periods. For the later periods, the presence of two specialized subsistence strategies, presumably practiced by two different populations at Huaca Prieta and Paredones respectively, becomes evident. Beginning at the end of Phase II, the Paredones remains show greater reliance on cultivated plants and gathered terrestrial fruits and other resources, on protein from terrestrial sources, mammals and birds, and on estuarine and lacustrine fish. Molluscan fauna, especially snails from particular species, is present in quantities that suggest ritual. Ritual use also appears to extend to the principal bivalves: mussels and clams. While certain littoral foods may have been added, i.e., easily gathered clams from sandy substrates, sea lion, and shorebirds instead of inland species, this subsistence pattern was more akin to that of the inland Nanchoc population to the north than to that of the population using the Huaca Prieta mound (Dillehay 2011a).

The Paredones site dates from ~10,500 to 4000 cal BP. Technological advances for the later Paredones farmers include mastery of water management for wetland agriculture (raised agricultural fields) around 4500 cal BP, and crop selection for higher yields. However, dependence on many gathered foods, particularly fruits—important nutritionally—continued. The Huaca Prieta populations emphasized the cultivation of industrial crops: gourds, and cotton, relying primarily on gathered marine and plant foods, diving technologies and the development of nets, while remaining largely dependent on gathered marine foods and limited cultivated plants (see Chapter 10 and Appendix 5).

Phase II at Huaca Prieta dates from ~7571 to 6538 cal BP (see Chapter 6). These ten centuries cover the period when the Sangamon terrace in the vicinity of the mound ceased to be the locus of occasional or semi-sedentary occupations and ritual and became a permanent place of ritual, probably with a small permanent and an extensive rotating ceremonial population.

The evidence for Phase II fauna at Huaca Prieta comes from the same units that produced the evidence for Phase I: Unit 2, Unit 3, Unit 9 and Unit 16. The evidence from HP-3 and Unit 9 is meager but does not contradict that from Unit 2 and Unit 16 (Table 9.3). The faunal record documents part of the transition from the small-scale occupations of Phase I to larger-scale resource procurement, as the construction phase of the mound moved from small scale, with the involvement of small groups of people to large scale, involving hundreds (see Chapter 7).

The most complete records for Huaca Prieta come from Unit 2, which lay at the southeastern edge of the mound near the border of the wetlands (see Fig. 3.1). In this unit, the three levels at the beginning of Phase II, Layers 7C7, 7C6, and 7C5, the dyadic complementarity seen in the black snails from rocky substrates in the Intertidal Zone, *Tegula atra* (and two other species of *Tegula* in very minor quantities) and *Prisogaster niger* is evident with substantial quantities: *T. atra* at 314 and 463 specimens in Layers 7C7 and 7C6, respectively, and a substitute *Diloma nigerrima* at 140 with *T. atra* at 3 specimens in Layer 7C5. The other species of *Tegula*, *T. euryomphala* is present with 1 to 3 individuals and *T. tridentata* is absent in Layer 7C7, but present with 20 in Layer 7C6 and 3 in Layer 7C5. The counterpart of the pairing with *Tegula* spp. is *Prisogaster* *niger*, for which there does not seem to be a substitute. It is present with 330 in Layer 7C7, 558 in Layer 7C6, and 150 in Layer 7C5. The quantities roughly balance those of *T. atra.* The next instance of complementary duality is seen with the brown snails from rocky bottoms *Xanthochorus buxea* and *Thais haemastoma* from the Intertidal Zone and *Thais chocolata* from the Subtidal Zone. The latter habitat makes *T. chocolata* much more difficult to obtain, since collectors would have to dive for it. There is another pairing of dual opposition that involves two snails from soft substrates, *Nassarius dentifer* and *Mitra orientalis*. Their numbers are usually roughly comparable. In the case of Layer 7C6, a different species *Anachis* sp. was substituted for *N. dentifer* with 105 individuals. This is uncommon.

One of the clearest relations of dual complementarity is seen in the bivalves where the mussels which live on rocks or form beds on top of other mussels. There are eight species of which *Choromytilus chorus* (the giant mussel)was by far the most important. The other group of bivalves are the clams, living on sandy bottoms, of which *Protothaca thaca* is the most important. As groups, clams and mussels represent two distinct habitats and together represent a relation of complementarity. It appears that different human groups fished for them. The giant mussel is found in the subtidal zone and requires specialized divers for its collection. The other mussels are found in the intertidal zone. The clams are found in the intertidal zone. The numbers of these bivalves at the beginning of Phase II are modest: 40 *Choromytilis chorus* in Layers 7C7, 23 in Layer 7C5. In Layer 7C6, 29 specimens of *Aulacomya ater* are substituted. Such substitutions for *C. chorus* are infrequent, people really tried to get the preferred species. The contrast between clams and mussels is the most important representation of the sandy bottom vs rocky substrate biotopes.

Crabs that appear to be important only as food, become increasingly important as the phase progresses, but their numbers are modest in the earliest three levels. The most frequent is *Platyxanthus orbignyi;* it is available year round and is found in the upper tidal zone on rocks. Sea urchins (*Tetrapygus niger*), which are edible but seem not to have been eaten at Huaca Prieta, appear to have a ritual role, and also an industrial role. In the earliest levels of Phase II, neither is particularly evident. There are 6 in Layers 7C7, 30 in 7C6, and 2 in Layer 7C5. They are found in the Intertidal Zone. Sharks and bony fish are present in these levels, but few in number. The demersal mullet (*Mugil cephalus*) and the Peruvian sea catfish (*Galeichthys* *peruvianus*) are present, although the latter becomes more common in the later part of the phase. The Sciaenids, a group of related grunts and croakers, become more common in later levels. Marine birds are few in Unit 2 and are largely absent from the early levels.

As Phase II progresses with larger numbers of people participating in the construction of the mound, both the quantity and the number of species used increase. This is evident at Unit 2 and also in Unit 16. The faunal remains in HP-3 and Unit 9 is very limited and it is not possible to discern patterns. The more recent levels of Unit 2 show the increase in consumption occasioned by the construction of the mound and its attendant activities. New species such as chitons and sea urchins appear in significant numbers near the end of the phase but do not persist. Patterns of snail collection seen in the earlier part of Phase II continue with increased numbers and new patterns as well. Numbers of *T. atra* rise to 1065 in Layer 7C4 and drop somewhat to 376 and 680 in Layer 7C2 and Layer 7C1, respectively. They rise to 1352 in Layer 7B and to 5256 in 7A. Another black snail, *Diloma nigerrima,* is present with an additional 1280 specimens in Layer 7A. In the earlier levels *P. niger* was 707, 103 and 163, but in the later ones the numbers are 721 in Layer 7B and 1806 in Layer 7A (see Table 9.4). The contrast with the brown snails is more striking. In the earlier Layers 7C7 to 7C5, *X. buxea* had 67, 201, and 108 specimens; *T. haemastoma* had 73, 90, and 38; while *T.* *chocolata* had 80, 63, and 36, going from earliest to latest levels.

However, in Layer 7B the numbers for *X. buxea* was 436; in Layer 7A it was 1806; and in Layer 7 it was 213; *Thais haemastoma* had 308 in Layer 7B, 3128 in Layer 7A and 185 in Layer 7. *Thais chocolata* had 461 in Layer 7B, 910 in Layer 7A and 42 in Layer 7. These patterns are significant, and seem to extend beyond the importance of snails as a possible food source. Crabs, on the other hand, emerge as a persistent, if intermittent, food source. The pattern with the *brown* snails persists with somewhat fewer individuals. The contrast between *N. dentifer* and *M. orientalis* continues in modest numbers. The pairing between mussels and clams is supported by larger numbers. The giant mussel, *Choromytilus chorus*, is present with 129 in Layer 7C4, 460 in Layer 7C2, and 445 in Layer 7C1. In Layer 7B there were 238 specimens; in Layer 7A there were 567 and in Layer 7 there were 59. At the same time the clam *Protothaca thaca* had 365 specimens in Layer 7C4, 430 in Layer 7C2 and 332 in Layer 7C1. The numbers for *P. thaca* in Layer 7B were 162 and in Layer 7A they were 624, dropping to 64 in Layer 7. In this later period there are a few specimens from each of a group of clam species. A similar increase in crabs (*Platyxanthus orbigyni*) is also seen with numbers rising to 113 in Layer 7B, 5295 in Layer 7A and dropping to 443 in Layer 7. No other crab approached these figures, but *Cancer polyodon* is the next most frequent.

The increase in numbers of the sea urchin (*Tetrapygus niger*) reflects their apparent use in the construction of the mound (see Chapter 7). *T. niger* had values of 150 and 147 in Layers 7C2 and 7C1. This increases to 654 in Layer 7B and 8148 in Layer 7A. Additionally a second species of sea urchin, *Caenocentrotus gibbosus,* appears with 88 specimens in Layer 7B and 1190 in Layer 7A.

New species of shark are exploited in the course of Phase II, but not in significant numbers with the exception of 34 Carcharhinidae (requiem sharks) in Layer 7C. In Layer 7B there are 24 Carcharhinidae, 8 *Mustelus* spp. (thresher sharks), and 9 *Lamnidae* (white sharks). These animals are a source of meat. This increase may indicate that more sharks were taken from the wetlands, a practice that continued through the next two phases. Throughout Phase II new species of fish are caught and the increased numbers and apparent new breadth of species is tempered by the fact that some eight species of drums, croakers and sea bass are all Sciaenids, demersal inhabitants of the estuarine zone. This indicates an intensification of exploitation of this habitat. While the numbers of the bony fish increase in Layer 7A, the numbers are not so dramatic as with other species. This may, perhaps, indicate technological innovation such as the use of nets such as small cast nets or even dip nets in the estuary channels, the wetlands and at the edge of the tidal zone for exploitation. (c.f., Chu 2011; Franco 2015; Chapter 12, Part 1.). Marine birds are present in the collection from Unit 2 in this phase, but their numbers are not significant. In like fashion, with the exception of Layer 7C with 23 sea lions were taken, this resource is not heavily exploited.

A number of contrasts can be seen between Unit 16, the off-mound domestic site, and Unit 2, considered to be a staging area at the southeastern foot of the mound. The presence of limpets *Fissurella* spp. and the dual opposition of the snails *Tegula atra* and *Prisogaster niger* are clear throughout the sequence. The contrast between *X. buxea* and *Thais* *haemastoma* and *T. chocolata* also is clear.While *Nassarius dentifer* and *Mitra orientalis* are both presence, the patterning of opposition is not clear in Phase II at Unit 16. The contrast between mussels and clams, principally *Choromytilis chorus* and *Protothaca theca,* each with additional species, is clear, but the numbers are modest, 23 *C. chorus* and 54 *Protothaca thaca* in Layer 5.

Sharks*, Mustelus* sp. (thresher sharks) and *Carcharhinus* sp. (requiem sharks) are consistently present in moderate numbers with other shark species in lower frequency. The bony fish appear with greater species breadth and consistently moderate numbers for mullet (*Mugil cephalus*) and the various Sciaenid species. These species are demersal over soft bottoms. We see the beginning of another contrast with the appearance of *Anisotremus scapularis*, a fish of the rocky reefs, also in moderate numbers.

A significant increase is seen in the modestly higher numbers of avian fauna at Unit 16 but the species are limited to the shore-roosting marine birds. The mammalian fauna, with one exception, is largely limited to occasional sea lions and beached dolphins but there is a significant number of unidentified terrestrial fauna in Layer 10 (Table 9.3).

With Phase II, the archaeological record from the Paredones site begins as well. While Unit 20 is presumed to be a domestic site at these early levels (Layers 10 and 11) and had no identifiable molluscan remains, it did have the same shark species in comparable numbers as found at Unit 22. Unit 22, which is hypothesized to be a food preparation site related to ritual had a full set of molluscan remains, beginning with several species of limpets in all 8 floors for this phase (Floors 19-24). *Fissurella* spp. appears to have had a ritual as well as utilitarian significance. The black snail dyad from rocky substrates, the *Tegula* spp./*Prisogaster niger* is very clear. Numbers of *T. atra* and *P. niger* increase steadily through Phase II: *T. atra* has values of 42, 218, 154, 277, 863, and 337 for Floors 24through 19*. P. niger* as corresponding values of 39, 843, 515, 873, 1416, and 701 for the same floors (see discussion for early Holocene period too).

There are also examples of snails from sandy substrates, *Sinum cymba* and *Polinices uber,* which seem to balance the brown snails found on rocks, *Xanthochorus buxea, Thais haemastoma,* and *Thais chocolate.* There is an important shift in the numbers from early to late in Phase II. Thus *X. buxea* has a high value but increases toward the higher and later lower floors up to Floor 19. The values for *T. haemastoma* for the same floor sequence show a similar decrease. The values for *T. chocolata* alsoshow a similar pattern from Floors 19- 24, with a significant increase in numbers (see discussion for early Holocene period too). The decrease in the quantity of these species probably corresponds with an increase in reliance on food crops at Paredones.

Sharks: *Galeorhinus* sp., *Carcharhinus* sp., *Sphyrna* (hammerhead shark), are present in moderate numbers in all floors at Unit 22 and all but one at Unit 20. All of these sharks seem to be available in the wetlands or estuary. Other shark species are represented by single numbers, of these *Myliobatis* sp., a ray, is found at both Unit 20 and Unit 22. The bony fish in both Units are dominated by mulled (*Mugil* *cephalus*), and the Sciaenid species, which are all demersal and found in the estuary. Mullet enters the wetland lagoons as well. Of interest is the presence in all floors of Unit 22, except Floor 11, *Anisotremus* *scapularis*, a fish of the off shore rocky reefs. The numbers are modest.

At both Paredones units the number of marine birds is impressive, although it is clear that the numbers at Unit 20 are far more modest. At both units, *Spheniscus humboldti* (the Humboldt penguin) is present but not common. Also rare, but present at Unit 22 in larger numbers, is the albatross (*Diomedea* sp.). *Haematopus* sp. is represented in all contexts but Floor 26 by a single individual. More impressive is the quantity of gulls, which were found on the beach close at hand. At Unit 20 there were 6 in Floor 11 and 14 in Floor 10. At Unit 22 the numbers increase from Floors 19 to 24. Three marine birds nest in close proximity and are often taken together: *Pelecanus thagus*, pelican; *Phalacrocorax bougainvillii*, cormorant; and *Sula variegatus,* booby. They are found in large quantities in all contexts in both units. In Unit 20 there are 2 pelicans, 12 cormorants and 2 boobies in Layer 10 and 28 cormorants and 1 booby in Layer 11. In Unit 22 the numbers for pelicans are 13, 101, 68, 20, 16, and 13 for Floors 24 to 19, respectively; for cormorants they are 17, 314, 309, 80, 82, 57 for Floors 24 to 19, respectively; and for booby the values are 8, 147, 108, 16, 35, 4 for Floors 24 to 19, respectively (see data for early Holocene levels). Finally we find that every context at Unit 22 has at least one duck, *Anas* sp. It seems clear from the numbers that these birds are present for their symbolic value, probably representing the lacustrine or freshwater wetland habitat. The numbers are 4, 5, 2, 1, 1, and 5 for Floors 24 to 19, respectively. No ducks were reported from Phase II levels at Unit 20.

Both units also produced impressive numbers of mammalian fauna. In Unit 20 there were 14 sea lions in Layer 11 and 36 sea lions in Layer 10, and a *Lama* sp. (either wild guanaco or domesticated llama) in Layer 10. In Unit 22 there were large quantities of sea lion in every floor: 103, 53, 75, 14, 72, and 97 for Floors 24-19, respectively. There were bones from 5 whales, and 3 dolphins (which probably provided meat and hide). Additionally there were 3 deer (from Floors 19 and 20) and a *Lama* sp. from Floor 22.

**Phase III: ~6538-5308 cal BP**

After the major construction effort in Phase II, Phase III, at least with regard to the fauna, is relatively quiet and quantities are low. Huaca Prieta faunal remains come from Unit 2, HP-3, Unit 9 and Unit 16. However, the only molluscan remains for this phase from Huaca Prieta come from Unit 16. Thus the patterning seen in the molluscan fauna in Phase II can be followed only in the domestic context of Unit 16. Mollusks were recovered from Units 20 and 22 at Paredones. In general the patterning of the molluscan fauna is similar between Unit 16 at Huaca Prieta and Units 20 and 22 at Paredones. The mound at Paredones was begun during the early part of this phase.

Only 2 limpets (*Fissurella maxima*) are present in Layer 6 at Unit 16, while at Unit 20 at Paredones almost the full range of species is present, although there are no limpets reported for Layers 5 and 7. Unit 22 also has limpets in near comparable quantities in Floors 17 and 18. It should be remembered that Floors 16 to 10 at Unit 22 (Phase III) reported no faunal material at all; the material recovered from these floors was all vegetal, corresponding to the period of an intense shift to crop production at this site. Floors 18 and 17 come early in the Phase III sequence. The contrasted pairing of the black rock snails, *Tegula atra* and *Prisogaster niger,* is present at Paredones where it is fully expressed in Layers 9, 8 and 6 of Unit 20 with 7 *Tegula atra*, 1 *T. euryomphala*, and 55 *Prisogaster niger* in Layer 9; 9, 3, and 63 specimens in Layer 8; but 83 *T.* *atra*, 13 *T. euryomphala*, and 880 *Prisogaster niger* in Layer 6. There is, however, only one specimen of *T. atra* in Layer 5 and none in Layer 7. Unit 16 has only one expression of this dual pairing in Layer 6 with 4 *T. atra* and 1 *P. niger*. The black rock snails were absent from Layers 7 and 8. If we keep in mind that these are marine snails from the rocky Intertidal Zone, it is noteworthy that the full expression of this dual relation is found in Unit 20 at Paredones. The snails from sandy substrates, particularly *Sinum cymba* and *Polinices uber,* find expression at Paredones in both units, while the brown rock snails of the Intertidal Zone, *Xanthochorus buxea* and *Thais haemastoma*, and *Thais chocolata* from the Subtidal Zone are expressed at both Paredones units but are not present in every layer. There is 1 *Thais chocolate* in Layer 6 of Unit 16 of Phase III. At Unit 22, in Floor 18, *X. buxea*, *T. haemastoma*, and *T. chocolata* decrease in numbers from Floor 18 to Floor 17. In Unit 20 the values for Layers 9 and 8 are very similar. There are none for Layer 7. But Layer 6 offers notably larger quantities: 289 *X. buxea*, 991 *T. haemastoma*, and 355 *T. chocolata*. This pattern is not present at the domestic site of Unit 16 where there is a single shell from *T. chocolata* in Layer 6*.*

The dual expression of *Nassarius dentifer* and *Mitra orientalis*, both from soft substrates, is present in both Paredones units, although the numbers are low except in Layer 6 of Unit 20. Exceptionally, these species are not present at Unit 16 at Huaca Prieta.

The dual expression between the mussels from the rocky substrates and the clams from the sandy ones is fully expressed at Paradones. In Floor 18 at Unit 22, there are 32 *Choromytilus chorus* mussels and 365 specimens of *Protothaca thaca*, a clam, but in Floor 17 there are only 13 of the latter. In Unit 20 the quantities are lower but the division between mussels from rocky substrates and clams from sandy ones is clear. In Unit 16 this opposition is represented only in Layer 6 where there are 2 specimens of *C. chorus* but 58 of *P. thaca*.

With the crustaceans, we are now able to include the other units from Huaca Prieta in the analysis. Unit 2 has a total of 152 crabs in Layer 6. Of these 138 are the violet crab, *Platyxanthus orbignyi,* the principal crab eaten, the others are *Cancer* *porteri* and *Cancer* *polyodon*. Unit 9 reports 25 *P. orbigny* in Layer 6,and Unit 16 has values of 50, 30 and 4 for *P. orbigny* in Layers 8, 7, and 6, respectively. There were 25 *P. orbigny* in Unit 9 and 138 in Unit 2. In this case there were 2 *C. porteri* and 12 *C. polyodon* as well. There were also 7 freshwater crabs, *Hyplobocera* sp., in Unit 9. These crabs are found in the river where they migrate downstream higher up the valley. The crustaceans were consumed as food and do not seem to have entered into the symbolic structures. They are available year round.

Much has been said about echinoderms (sea urchins) in many chapters of the book (Dillehay 2016) and their important contribution to the construction of the mound. They also appeared to have played a role in ritual. In Layer 6 of Unit 2 there were 718 sea urchins (*Tetrapygus niger)* and 1 *C. gibbossus*. In Layer 6 of Unit 9 there were 15 sea urchins (*T. niger).* They were absent from Unit 16 and Paredones, which suggests they were not consumed in domestic and food preparation contexts.

The remains of sharks are important, since these were an important source of meat and were taken from the wetland lagoons and the backchannels of the river. Several tolerated brackish water. Many may have been juveniles since female sharks gave birth to their live young near the coast. Sharks were important both at Huaca Prieta and at Paredones. Layer 6 in Unit 2 had a total of 4: 2 thresher sharks (*Mustelus* sp.), 1 from the Carcharhinidae, the family of the requiem sharks, and 1 member of the *Lamnidae*, the mackerel or white sharks. There were 4 sharp nose sharks (*Rhizoprionodon* sp.) in Layer 36 of HP-3. Unit 9 had one *Carcharhinus* sp. The low numbers indicate an indifferently focused exploitation of these animals. The case is different in Unit 16, which like Units 20 and 22, was involved in food procurement and preparation. There were 39, 78, and 7 thresher sharks (*Galeorhinus* sp.) in Layers 8, 7, and 6, respectively, at Unit 16. The same layers had 129, 330 and 34 requiem sharks (*Carcharhinus* sp.), respectively. There are 4 of *Rhizoprionodon* in Layer 36 of Unit HP-3. Hammerhead sharks (*Sphyrna* sp.) were also present with values of 7, 99, and 5 in those layers, respectively. Rays also come in close to shore: there were 10 of them from three species in Layer 8 of Unit 16; there were 17 eagle rays (*Myliobati*s sp.) in these same layers, with 14 in Layer 7. At Unit 20 in Paredones there were 5 eagle rays (*Myliobatis* sp.). There were no sharks in Unit 22 during Phase III. There were 2 *Carcharhinus* sp. from Floor 18 in Unit 22, and 1 *Sphyrna* sp. from Floor 17 in Unit 22.

Bony fish tend to fluctuate in frequency. At Unit 22 there were 5 flounders (*Paralychthys* sp.), demersal fish that bury themselves in the soft sediment of the sea floor, and 2 *Mugil* *cephalus*. Unit 20 had at least Peruvian morwong (*Cheilodactylus* *variegatus*) in every layer except Layer 5; Layer 9 had 6. More impressive were the number of mullet (*Mugil* *cephalus*) available in the nearby wetland. There were 121 in Layer 9, 37 in Layer 8, 28 in Layer 7, and 18 in Layer 6. Flounder (*Paralychthys* sp.) was also present in Layers 9, 8 and 6 with values of 4, 9, and 2, respectively. Unit 22 did offer the contrast between 2 *Paralonchurus* *peruanus,* a demersal Sciaenid fish from soft bottoms near shore, and 2 *Anisotremus scapularis*, a fish of the rocky reefs, considered a place of abundance. In Unit 16 the drums and croakers of the Sciaenidae were present in several layers, although some had single specimens. There were 25 anchovy (*Engraulis ringens*) at Unit 2, and 4 sardines (*Sardinops sagax-sagax*). Unit 2 in Phase III has a total of 9 *Sciaena* *deliciosa* in Layers 6 and 5.

Marine birds also vary in importance. However, most Phase III units had bird fauna. In Unit 22, there were 4 albatrosses, *Diomedea* sp., 6 *Larus* sp., 10 pelicans (*Pelecanus* sp.), and 3 cormorants (*Phalacrocorax bougainvillii*). Compare these figures with those from Unit 20, where Layers 9, 8 and 6 had 1 or 2 plovers (*Charadrius* sp*.*) and slightly more grebes, but gulls (*Larus* sp.) were present in much higher numbers: 96 in Layer 9, 16 in Layer 8, 17 in Layer 7, and 20 in Layer 6. The pelicans, cormorants and boobies that nest in close proximity had the following numbers: the pelicans had a value of 11 in Layer 9, 3 in Layer 8, 9 in Layer 7, and 11 in Layer 6. Cormorants were 113 in Layer 9, 15 in Layer 8, 26 in Layer 7, and 113 in Layer 6. The boobies (*Sula variegatus*) were fewer in number (67, 4, 1 and 19) in the same layers, respectively. In Unit 16 the picture is much the same. Marine birds included Humboldt’s penguin with 2 in Layer 8 and 1 in Layer 6; plovers (*Charadrius* sp.) with 33 in Layer 8, 1 in Layer 7 and 17 in Layer 6; gulls (*Larus* sp.) with 19 in Layer 8, 8 in Layer 7, and 3 in Layer 6. There were a few terns, and pelicans with values of 5, 6 and 1 in Layers 8, 7 and 6, respectively. The cormorants (*P.* *bougainvillii*) have higher values: 83 in Layer 8, 69 in Layer 7, and 3 in Layer 6. The boobies almost always are fewer, 2, 9, and 3 in Layers 8, 7 and 6, respectively. In Paredones we found a representational relationship with the ducks. These birds are associated with freshwater wetlands and were present in almost every layer with at least a single specimen, which is in contrast with the marine birds.

Finally, the mammals vary by unit. Unit 22 at Paredones had 18 sea lions in Floor 18 and 4 in Floor 17. There was also a *Lama* sp., probably by this date a llama. Unit 20 in contrast reported a dog (*Canis* *familiaris*) in Layer 9, and for the sea lions the counts were 161 in Layer 9, 31 in Layer 8, 7 in Layer 7, 38 in Layer 6, and 5 in Layer 5~~.~~

There is a difference between vertebrate remains from Unit 2, Phase II, and those from Phase III. Although the range of species is comparable, in Phase III, the greater number come from the Carcharhinidae, the requiem sharks, followed by the *Lamnidae*, the mackerel or white sharks. The bony fish come from 18 species, while in Phase II, there were 24 species. The quantities are also smaller. There is also a shift in the species of birds exploited between these two phases. In Phase II, while not a lot of birds were taken, they were *Pelecanus thagus*, pelican; *Phalacrocorax**bougainvillii*, cormorant; and *Sula variegata*, Peruvian booby or *piquero*. These birds required a trip to the rookery to obtain them. In Phase III, there is a definite shift to gulls (*Larus* sp.), smaller but available on the beach. It is only in Layer 5B that the proportions found in Phase II reappear and in quantities are high enough to make the totals less distinctive than they would otherwise be. Throughout most of Phase III, sea lions (*Otaria* sp.) were absent or appear only rarely, with the exception of Layer 5B. Significant also is the appearance of one camelid (*Lama* sp.) in Layer 5b. It is reasonable to suggest that Layer 5B marks a return to the patterns seen in Phase II, although the absence of fauna in Layers 5 and 5a indicate that there was a shift in locale or a hiatus thereafter.

The only identifiable faunal remains in Unit 16 are vertebrates. In the earlier Layer 8, the emphasis was on sharks, which presumably were present in the estuary and in the wetlands. Demersal fish from estuarine and near coast environments were also prominent, particularly the Sciaenidae. There was only one specimen of mullet (*Mugil cephalus*) from the wetlands. While there were some plovers (*Charadrius* sp.) along with gulls and a wild duck from the interface between wetland and beach, the dominant avian species were the marine birds: pelican, cormorant, and booby, which tend to nest in adjacent rookeries (Murphy 1936).

The later Layer 7 was present in three subunits. The sharks *Galeorhinus* sp., the school or tope shark, and *Carcharhinus* sp., the requiem shark, dominate the marine fauna in numbers and size. The bony fish are limited to the Sciaenidae from estuarine waters. The bird fauna is primarily the three marine species noted above. The marine mammals, particularly sea lions and possibly others, since the number of unidentified marine mammals is relatively high, were also important. Significant in this layer was the concentration on a few species, which were taken to the exclusion of others. Without the molluscan fauna and the crustaceans, it is impossible to say whether this was a characteristic of all the fauna or only the vertebrates.

While Phase III is a major period of construction at Huaca Prieta, Paredones contains a regular succession of some twelve discrete layers in Unit 20. The record from Unit 22 is found in two stratigraphic units. The radiocarbon dates indicate this area was in use between ~6500-4000 cal BP. The faunal record from both units is sparse (Tables 9.4). In the earliest layers, Layers 9, 8, 7, and possibly Layers 6G-H of Unit 20, single specimens or at most two or five, are reported for the limpets (*Fissurella* spp.). The same patterns hold for the black rock snails, *Tegula* spp. and *Prisogaster niger*, where there appears to be an exception in Layer 8, Unit 20, where the value for *Prisogaster niger* is 63 shells. Values are greater than 10 but less than 100 specimens for *Polinices uber* (the snail from sandy bottoms), the three brown rock snails (*Xanthochorus* *buxea*, *Thais haemastoma* and *Thais chocolata*), but only three shells are reported for *Nassarius* *dentifer* and 15 for *Mitra orientalis* (Table 9.4). In contrast to the snails, bivalves are represented by a single specimen of two mussels (*Perumytilus pupuratus* and *Semimytilus algosus*) from a rocky habitat and a single clam, *Gari solida*, from a sandy substrate. These numbers and the lower one in the early layers suggest that these shells are representational, that is, they represent their habitat and whatever meaning was ascribed to that, rather than just the byproduct of consumption.

In later layers of Unit 20, Layer 7, Layer 6, and Layer 5, the same distribution continues. There is a significant increase in the quantities of the brown rock snails in Layer 6, where the specimens are in the hundreds (Table 9.4). This increase indicates a change in function.

The vertebrate fauna from Unit 20, an off-mound habitation area, is less problematic. Throughout Phase III, counts for sharks, particularly *Carcharhinus* sp., the requiem shark, are highest in Layers 9 and 8. In Layer 6, there is *Mugil cephalus* (mullet) both from the wetlands and estuarine waters. *Galeichthys peruvianus*, the Peruvian sea catfish, a comparable fish from the same waters, is absent. Smaller bony fish, such as the Sciaenids from the estuary or fish like *Anisotremus scapularis* from the rocky reefs are rarely present. Of the birds, the cormorant, *Phalacrocorax bougainvilliorum*, is the most frequent, followed by the booby (*Sula variegata*) and the smaller but ubiquitous gulls (*Larus* sp.). The counts for the large mammals, principally sea lion (*Otaria* sp.), follow the same pattern. The counts for unidentified fish and birds are relatively high. The faunal remains from Unit 20 give only a partial perspective on the activities and total fauna at the site, particularly in the middle and final parts of the phase. However, emphasis was on taking large and easily obtained animals (juvenile sharks and mullet from the wetlands and estuary): gulls from nearby beaches, and marine birds, particularly cormorants and boobies (*Phalacrocorax bougainvilliorum* and *Sula* *variegata)*, and sea lions from their rookeries on the beaches. The marine birds and sea lions were most available in late spring through the austral summer (November through March). Thereafter, if not entirely absent, their numbers were much reduced.

**Phase IV: ~5308-4107 cal BP**

The faunal data for Phase IV are presented in Tables 7-9. In Unit 2, Layers 4 and 3 have faunal assemblages that include all classes of animals. Within the mollusks, the representational groupings of gastropods and bivalves are present. There are crustaceans in each layer and both sharks and bony fish, birds and mammals among the vertebrates, although the species are few and the numbers relatively low.

The faunal material from Phase IV at Huaca Prieta comes from Units 2, 3, HP-3, 13, 16, and 25. Paredones material comes from Unit 20 and Unit 22.

The faunal remains which come from Unit 2, off the mound to the southeast, and Unit 3, on the upper northeastern slope of the mound, are relatively meager. Nevertheless, in Unit 2 we see the continuation of the same patterning we have described since Phase II. There are only two layers and most material is in Layer 3. Limpets are present, one each of three species; the dual opposition with the black snails is expressed with a value of 51 for *Tegula atra*, 3 for *T. tridentata*, and 71 for *Prisogaster niger*. *Polinices* *uber*, a snail of the sandy substrate, seems to represent that biotope in opposition to the brown snails, *X buxea* with a value of 109, *Thais haemastoma* with a value of 38 and *T. chocolata* with a value of 33. The pairing of *Nassarius dentifer* with a value of 14and *Mitra orientalis* with a value of 13 is also present. The opposition between the rock-dwelling mussels, represented by 6 giant mussels (*Choromytilis chorus*) and the sand-dwelling clams, here represented by 26 *Protothaca thaca* together with a single *E. rufa* and a *Spisula* *adamsi* and 19 *Donax obesulus*, a miniature clam. The violet crab *P. orbignyi* has a value of 6 in Layer 3 and 11 in Layer 4. The principal sharks come from the Carcharhinidae, 5 in Layer 3 and 23 in Layer 4. There was a single specimen of *Mustelus* sp*.*, the thresher shark and a single *Urotrygon* sp. also in Layer 4. The majority of the bony fish are in Layer 4. There are 20 Peruvian sea catfish, *Galeichthys peruvianus*. There are 253 anchovy (*Engraulis ringens*) and 13 sardine (*Sardinops sagax sagax*). The sciaenids are represented by almost all of the constituent species with numbers in the single digits from 2 to 7. As in the earlier phases the grunts and croakers, the Sciaenids, are demersal and found in the estuary and the near shore making this family one of the most significant for the fishers of Huaca Prieta.

The fauna from Unit 25, which lies on the northern slope of the mound at Huaca Prieta, offers interesting data.

Unit 25 offers a more complete faunal register, although numbers of individuals are low. Several species of freshwater snails appear, possibly brought to the unit on vegetation (reeds) from the nearby wetland on the eastern side of the Sangamon terrace. Among the gastropods and the bivalves, the contrast in species is maintained. Sharks, available in the lagoon and estuary, and marine birds, dominate the vertebrate fauna. Large mammals are relatively rare. It seems that activities at Unit 25 were distinct and this is reflected in the faunal assemblage.

Unit 13 tested a fishing village or camp to the north of Unit 16. The analyzable remains recovered included 3 sharks from Floor 3, the Carcharhinidae family, the requiem sharks. There were also remains of two Sciaenid grunts, *Paralonchurus peruanus*, and one hake, *Merluccius gayi*. Other, but less frequent, vertebrate fauna and no mollusks or crustaceans were recovered, strengthening the evidence that Unit 13 was a fishing station (see Chapter 7). The evidence does, however, give an idea of the fish that could be taken on the open shore. In this case the evidence for Carcharhinidae and the Sciaenid *P. peruanus* is significant since these taxa are among the most common recovered. It also indicates that recovery was from the sea and not the wetlands.

Unit 16, the largest of the three locales (Unit 13, 16 and 26) associated with habitation, offers a complete suite of remains. Thus, the molluscan fauna begins with sea cucumbers, and 1 *Chiton* *granosus* in Layer 4 and 3 in Layer 3. Limpets are represented by four species in Layer 3 in numbers from 1 to 4, and by a slightly different configuration of four species in Layer 4 with representation by a single specimen each. The rocky substrate-dwelling black snail dyad *Tegula/Prisogaster niger* is expressed in Layer 4 by 89 *T. atra* and 8 *T. tridentata* and by 21 *P. niger.* In Layer 3 the expression is 156 *T.* *atra* and 13 *T. tridentata* and 25 *P. niger*. Sand-dwelling snails are represented by *Polinices cora* with 9 examples in Layer 3. The rock-dwelling brown snails of the inter-tidal zone, *Xanthochorus buxea* and *Thais haemastoma*/the Sub-tidal Zone species/*Thais chocolate* are fully expressed in Layer 4 with 25 *X. buxea* and 10 *T. haemasoma* /15 *T. chocolata* and in Layer 3 with 17, 11 and 10, respectively. The dyad of soft substrate dwellers, *Nassarius dentifer*/*Mitra orientalis* is present, but incompletely expressed. In Layer 4, *N. dentifer* is present with 4, but *M. orientalis* is absent. In Layer 3, *N. dentifer* has 1 specimen and *M. orientalis* has 2. The contrast between the rocky substrate mussels and the sandy substrate clams is maintained with 58 (*Choromytilus chorus* and 2 *Perumytilus purpuratus*) for the mussels in Layer 4 and with 74 *C. chorus* and 1 *Semimytilus algosus* for Layer 3*;* for the clams in Layer 4 there are 21 *Protothaca* *thaca* and a total of 11 other clams spread over 5 species. In Layer 3, there are 72 *P. thaca*, 16 *Gari solida*, 11 *Donax obesulus* and a total of an additional 6 specimens divided among 3 species. If the mussel/clam dyad can be, and often is, reduced to just one mussel and one clam, here we see an effort to represent most of the clam species and several of the mussel species present in the area.

Crabs are represented by *Platyxanthus orbignyi:* 6 in Layer 4 and 3 in Layer 3, Unit 16. *Cancer polyodon* is also found in both layers, 2 in Layer 4 and 1 in Layer 3. Additionally, in Layer 3 there are single specimens of *Cancer porteri, Cancer sexdecimdentatus,* and *Cyclozanthops sexdecimdentatus.* There are also sea urchins (*Tetrapygus niger*): 102 in Layer 4 and a single specimen in Layer 3.

The sharks from Unit 16 offer some interesting features. Most numerous are *Galeorhinus* sp., the school or tope shark, with 15 in Layer 4 and 8 in Layer 3. Also in Layer 4 were 5 requiem sharks, *Cacharhinus* sp., and 4 thresher sharks, *Alopias* *vulpinus*. Layer 3, in addition to the tope sharks noted above, had 10 white sharks (*Lamnidae*), 2 requiem sharks, *Carcharhinus* sp., and 1 each of *Alopias vulpinas*, *Alopias* sp. and *Squatina armata.* There were also 3 guitarfish, *Rhinobatos planiceps.* The numbers and species breadth in these two layers suggest a fairly intense effort to obtain sharks of different species. It is difficult to assess whether all these sharks came from the sea or whether the *Galeorhinus* and *Carcharhinus*, in particular, may have been caught in the wetlands.

The bony fish recovered were few and limited in distribution. There were 4 specimens of the Sciaenid grunt, *Paralonchurus peruanus*, ademersal fish of the estuary and near shore in layers 4 and 11 in Layer 3. Other fish reported for Layer 4 include 3 *Paralabrax* sp. and 4 *Sarda chiliensis chiliensis.*

Marine birds present in Layer 4 were 2 Humboldt’s penguins (*Spheniscus humboldti*). There were 6 of these birds in Layer 3. The remaining birds from Layer 4 are 2 gulls, *Larus* sp., and 1 cormorant (*Phalacrocorax bougainvillii*). In Layer 3, in addition to the penguins, there were 3 gulls (*Laridae*), 1 pelican (*Pelecanus thagus*), and 4 cormorants *(P. bougainvillii*). There was one unidentified marine mammal in Layer 4 and 2 sea lions in Layer 3. The faunal remains from Unit 16 reflect its nature as a residential site with food preparation a major activity. Because our analysis has been rigorously limited to material from layers and other secure contexts, both species breadth and quantity have been limited.

Unit 25, which lies on the northern slope of the mound, represents an area with some prepared ritual venues but which also received tossed material from the top of the mound (see Chapter 7). The faunal remains analyzed here show some similarities with those of Unit 16. There were 2 limpets, one each from two species (*Fissurella latimarginata* and *F. limbata*) in Layer 6. In Layer 5, there were a total of 5 limpets from four species (*Fissurella peruviana, F. maxima, F. limbata* [with 2 specimens], and *Fissurella* sp.). In Layer 6 the figures are 87 for *T. atra*, 30 for *T. tridentat*a and 698 for *P. niger*. The black snails from rocky substrates: *Tegula atra, T. euryomphala* and *T. tridentata* are present with 94, 1, and 28 specimens, respectively, in Layer 5, while *Prisogaster niger* has a value of 371. These figures suggest ritual use, with possibly some consumption. One species of *Polinices* is present in Layer 6, *P. uber*, with 10 in Layer 6 and 7 in in Layer 5. The values for the brown snails from rocky substrates are *Xanthochorus buxea* with 705 in Layer 6 and 356 in Layer 5 and *Thais haemastoma* with 35 in Layer 6 and 19 in Layer 5. *Thais chocolate,* from the Subtidal Zone, has a value of 74 in Layer 6 and 61 in Layer 5. *Nassarius dentifer* and *Mitra orientalis,* are represented by 39 each in Layer 6 and *N. dentifer* by 14 and *M. orientalis* by 18 in Layer 5. The dual opposition between rock-dwelling mussels and the clams of sandy substrates is also manifest. In Layer 6 there are 93 giant mussels (*Choromytilis* *chorus*) and 3 examples of the mussel *Semimytilus* *algosus*. As at Unit 16, the clams are spread over several species: *Protothaca thaca* with 21, 1 for *Euromalea rufa,* 2 for *Gari solida,* and 27 for *Donax* *obesulus*, a miniature clam in Layer 6. In Layer 5, the value of *P. thaca* was 15, *E. rufa* was 11, *G. solida* was 1, and *Donax obesulus* was 30. The values for the violet crab, *Platyxanthus orbignyi,* were 29 in Layer 6 and 3 in Layer 5. There were no sea urchins reported. No vertebrate fauna was reported.

The two units from Paredones, Units 20 and 22, which are assumed to be food preparation and ritual areas for that portion of the population that engaged in early agriculture but was still part of the Huaca Prieta (see Chapter 7 and 10). Unit 20, a habitation and food preparation area is represented by Layers 2, 3, and 4. Unit 22 is represented by Floors 4 through 9.

In Unit 20 there are keyhole limpets (*Fissurella* sp.) in all layers. In Layer 4 where there is only one, *F. maxima*, there is also one true limpet, *Collisella orbignyi.* The *Tegula/Prisogaster* opposition is imperfectly expressed. There is one *Tegula atra* shell in Layer 4, and none in Layer 3. In Layer 2 the basic dyad is expressed with a count of 11 for *T. atra* and of 33 for *P.* *niger*. The *Polinices* species and *Bursa ventricosa*, snails that live on sand and contrast with the brown snails from rocky substrates, are present in Layers 4 and 2. *Polinices uber* with a count of 4 together with *Bursa ventricosa* with a count of 1, are present in Layer 4 where *Xanthochorus* *buxea* has a value of 4 and *Thais* *haemastoma* has a value of 6 and T. *chocolata* has a value of 7. The brown snails are absent from Layer 3. The dyad *Nassarius/Mitra* is represented in Layers 4 and 2 with values of 7 and 14 for *Nassarius dentifer* and counts of 4 and 8 for *Mitra orientalis.* These snails are absent from Layer 3. The dual opposition with the bivalves, mussels and clams is expressed in Layers 4 and 2 but not in Layer 3. There is one specimen of *Choromytilis* *chorus* in Floor 4 and 3 examples of *Protothaca thaca* and one *Euromalea rufa*. Both bivalves are absent from Layer 3. In Layer 2 there are *C. chorus* with a value of 2, *Perumytilus purpuratus* with a value of 4, and *Semimytilus algosus* with a value of 1, counterposed to a total of 13 clams, 9 *P.* *thaca*, 1 *E. rufa*, and 3 *Semele* *solida*. There were no crabs in any of the three levels and only one sea urchin, *T. niger*, in Layer 3.

There is one example of *Carcharhinus* sp*.*, the requiem shark and 19 guitarfish, *Rhinobatos planiceps,* in Layer 4. In Layer 2 there is a much greater variety: 3 tope sharks, *Galeorhinus* sp., 2 thresher sharks, *Mustelus* sp., 3 Carcharhinidae, 47 *Carcharhinus* sp,, for a total of 50 requiem sharks, one hammerhead shark. *Sphyrna* sp. and 2 angel sharks, *Squatina armata,* alsoappear. There is only one unidentified fish in Layer 4. There are no fish in Layer 3. Layer 2 has a more “normal” distribution. There is a value of 27 for mullet (*Mugil cephalus)* and one for flounder, *Paralychthys* sp. There is 1 *Labrisomus philippii.* For the Sciaenids, there are 7 *Paralonchurus peruanus*, 3 *Sciaena gilberti*, and 3 *Sciaena deliciosa.* These are all demersal fish over soft bottoms in the estuary or near shore. Also in Layer 2 are 7 *Anisotremus scapularis*, a fish found over rocky reefs. Altogether there were 16 unidentified fish. There are no further vertebrates in Layers 3 and 4. Layer 2 has a group of marine birds with the following counts: Humboldt’s penguin, *Spheniscus humboldti*, 1; albatross, *Diomedea sp*., 2; plover, *Charadrius* sp., 1; seagull, *Larus* sp., 48; pelican, *Pelecanus thagus,* 25; cormorant, *Phalacrocorax bougainvillii,* 82; booby, *Sula variegatus, 24;* duck, *Anas* sp., 2, and 54 unidentified birds.

The mammals are all from Layer 2 as well. There are 3 specimens of Muridae, small rodents, probably field mice; sea lion, 62, *Otaria flavescens;* and 4 *Lama* sp. The unidentifiable material breaks down as 3 unidentified marine mammals, 7 unidentified terrestrial mammals, and 0 unidentified mammals.

The record for Unit 22 is essentially similar, although there are differences in detail. A full complement of keyhole limpet species is reported for Floors 7-4. *Fissurella peruviana* reports 4, 21, 27 and 22 for Floors 7 through 4,respectively. For *F. maxima* the values are 8, 26, 21 and 24, respectively. For *F. latimarginata* the values are 3, 1, 3, and 10, respectively. For *F. crassa* the counts are 1 for Floor 8, then Floors 2, 4, 1, 8, respectively. There is one *Fissurella* sp. for Floor 6. True limpets are represented by *Collisella orbignyi* inFloors 6, 5, and 4, with values of 2, 1, and 7, respectively.

The complementary dual opposition of the black snails, *Tegula* spp/*Prisogaster* *niger*, is expressed in all Floors 4 through 9. *Tegula* *atra* has values of 17, 15, 31, 8, 1, 1, respectively, for these floors. *T. euryomphala* is found in Floor 5 and Floor 6 with counts of 2 and 1. *P. niger* is also found on all floors with values of 27, 16, 107, 31, 1, and 1, respectively.

Snails living on sandy substrates include *Sinum cymba,* of which 1 was found on Floor 7 and 2 on Floor 6. Values for *Polinices uber* for Floors 7 through 4 are 16, 85, 23, and 50, respectively. *Bursa ventricosa* with a count of 2 is present in Floor 6. Complementary dual opposition of the brown snails *X. buxea* + *T. haemastoma*/*Thais chocolata* was expressed as follows in Floors 7 through 4, respectively: *Xanthochorus* *buxea* had counts of 58, 301, 22, 25, respectively. For Floors 4 through 8, *Thais haemastoma* had counts of 24, 22, 126, 31, and 3, respectively. *Thais chocolata* had counts of 46, 39, 239, 91, and 5 for the same floors, respectively. There was one specimen of *T. delessertiana* in Floor 6. The paired opposition between *Nassarius dentifer* and *Mitra orientalis* was expressed between Floors 7 and 4, with the following values for *N. dentifer*: 2, 109, 5, and 4 and for *M. orientalis* 7, 46, 4, and 4, respectively. There were also 2 specimens of *Cancellaria descussata* in Floor 7.

The complementary opposition between mussels and clams and their respective habitats is seen in all floors. The mussel *Aulacomya ater* is present with a value of 1 in Floor 4. *Choromytilus chorus* is present in Floors 8 through 4 with the following values: 2, 18, 15, 3, and 6, respectively. *Perumytilus purpuratus* is present in Floors 7 through 4 with these values: 5, 11, 1, and 3, respectively, and in Floor 9 with 1. *Semimytilus* *algosus* is present in Floors 7 through 5 with values of 1, 2, and 1, respectively.

For the clams Floor 4 has *Trachycardium procerum* with a value of 1; *Protothaca thaca* with a value of 10; *Euromalea rufa* with a value of 1 and *Donax obesulus* with a value of 1. Floor 5 has *P. thaca* with 2, *E. rufa* with 1; Floor 6 has *P. thaca* with 4 and *D. obesulus* with 1; Floor 7 has *P. thaca* with a count of 9. There are no clams on Floor 8 or Floor 9, although there had been a token mussel on each.

Crabs were present in several of these floors. For *Platyxanthus orbigny*, the violet crab, in Floor 7 there was 1, 4 in Floor 6, and 24 in Floor 4. There was 1 *Platyxanthus cokeri* in Floor 4. There was 1 *Cancer* *porteri* in Floor 4 and 1 in Floor 5. No sea urchins are reported.

Sharks reported on Floor 4 were 1 *Galeorhinus* sp.; 10 *Carcharhinus* sp. and 2 *Myliobatis* sp., eagle rays. For Floor 5, there was 1 *Galeorhinus* sp. and 1 *Myliobatis* sp. There were no sharks on Floors 6 and 7.

There were 1 *Carcharhinidae* and 11 *Carcharhinus* sp. in Floor 8. There were no sharks in Floor 9. Bony fish were scarce as well. *Mugil cephalus* were reported for Floor 4 with a count of 2 and Floor 5 with a count of 3. *Paralychthys* (flounder) with a count of 2 was present in Floor 8. *Paralonchurus* *peruanus* was present with a count of 1 in Floors 7 and 8. *Sciaena* *starksi* is present on Floor 4 with a value of 8, in Floor 5 with a value of 5 and in Floor 6 with a value of 13. These are Sciaenids, demersal fish over soft bottoms of the estuary and near shore. *Anisotremus* *scapularis* is found over rocky reefs. It is present in Floor 4 with a count of 6, in Floor 6 with a count of 1, and in Floor 8 with a count of 2.

The marine birds are present in Floors 8, 5 and 4. In Floor 4 there is 1 Humboldt’s penguin (*Spheniscus humboldti*), 5 seagulls (*Larus* sp.), 13 pelicans (*Pelecanus thagus*); 51 cormorants (*Palacrocorax bougainvillii*); 10 boobies (*Sula variegata*); 1 *Podilymbus* *podiceps.* In Floor 5 there are 2 Humboldt’s penguin (*Spheniscus humboldti*), 5 seagulls (*Larus* sp.); 5 pelicans (*Pelecanus thagus*); 23 cormorants (*Palacrocorax bougainvillii*); 2 boobies (*Sula variegata*)~~.~~ In Floor 8 there is 1 seagull (*Laru*s sp.); 1 pelican (*Pelecanus thagus*); and 3 cormorants (*Palacrocorax bougainvillii*).

The identified mammalian vertebrates are limited to sea lion (*Otaria flavescens*). There are 1 in Floor 9, 12 in Floor 8, 36 in Floor 5, and 31 in Floor 4. Floor 4 also has 65 unidentified marine mammals and 4 unidentified terrestrial mammals.

**Phase V: ~4107 to 3455 cal BP**

During this phase, activity was concentrated on the summit and upper slopes at Huaca Prieta. Faunal remains suggest repeated ritual activity and only exceptionally, mortuary feasting. There are, however, differences of frequency between units, which are of interest as well as differences between Phases IV and V.

For the mollusks, the systematic regularities described above persist, but their frequency decreases. Unit 22 is the only unit at Paredones in Phase V. It displays relatively few changes between Phases IV and V (see Tables 9.10-15). While this site shares the focus on multiple species of snails, the largest numbers are confined to relatively few species. The emphasis is on the snails and bivalves.

The limpets of the genus *Fissurella* are found in the upper tidal zone. There are five species, but the frequency changes between Phases IV and V: while *Fissurella maxima* is most numerous in both phases, it is matched by *Fissurella peruviana* in Phase V, whereas *Fissurella latimarginata* was second in frequency in Phase IV. However, Phase IV is nearly twice as long as Phase V. Where a context has less than the full complement of gastropods, the limpets may be represented by a single shell, or none at all. The most important category of snails is the group of black snails represented by three species of *Tegula* sp. and *Prisogaster niger*. These snails are found on submerged rocky substrates in the intertidal zone. There appears to be a *Tegula–Prisogaster* opposition that represents a whole and appears alone or in concert with other species. The frequency can vary from single digits to hundreds and even thousands, as occurred in this unit in Phase IV. The next group is found on sandy substrates. A single species, *Polinices uber,* stands out in importance and is often found alone, but almost never omitted. The three brown snails are also found on rocky substrates. These three are often found together with varying frequencies. When numbers are low, one or two of these species appear to represent all three. It appears from the varying frequencies that *Thais chocolata*, found in the deep Subtidal Zone and which had to be obtained by diving, like the mussel *Choromytilus* *chorus*, is contrasted because of its habitat with the other two, which are found at less depth in the Intertidal Zone. The numbers for Phases IV and V in Unit 22 are unusually large. The final group is also from sandy substrates, but is dominated by the dyad, *Nassarius dentifer* and *Mitra orientalis*. This pair may not always be present at the same time, but one or the other is rarely absent.

There is a major but complementary, dichotomy between the rocky substrate mussels and the clams found on sandy bottoms. The giant mussel (*Choromytilus chorus*) predominates. The other species of mussel found in lesser numbers are *Aulacomaya ater, Perumytilus purpuratus, Semimytilus algosus*, and *Brachidontes* sp. At times these species stand in for *Choromytilus chor*us in the final grouping, which is essentially a mussel-clam dyad. The most common clam from Unit 22 is *Protothaca thaca.* It is most often accompanied by a single shell of *Euromalea rufa*, a large clam. Other clam species are *Petricola rugosa, Gari solida, Semele corrugata, Semele solida, Spisula adamsi,* *Donax obesulus*, a miniature clam, and *Mesodesma donacium*. Neither *Choromytilus chorus* nor *Mesodesma donacium* are found today off the coast of the Chicama Valley. Their range has moved south to southern Peru and Chile.

In Phase V, there is a regularity that occurs with the bony fish. The Sciaenadae family includes *Paralonchurus peruanus, Cynoscion* sp., *Sciaena deliciosa, Sciaena gilberti*, and *Sciaena starksi,* all of which are considered prime table fish today. *Paralonchurus peruanus* is always noted together with one of the other four. All are demersal and found at the mouth of the river and in estuarine environments and over soft bottoms along the coast. In earlier phases, the Sciaenids are opposed to one of three species living over rocky reefs: Most frequent is a pairing with *Anisotremus scapularis, Paralabrax* spp., or *Scartichthys* spp., of which *Anisotremus scapularis* is the most common.

Long-term fluctuations in the frequency of fauna may be the result of variations in the environment, changes in habitat, or in their availability or accessibility. While there are consistent patterns that extend through several phases at Huaca Prieta and Paredones, other patterns emerge and then diminish or disappear. While in some cases it is possible to identify external causes affecting habitat, some causes must lie in the social organizational or ideological spheres.

The molluscan fauna, primarily gastropods, but also bivalves, appear to function as signifiers. Habitat may be a factor, at least as an explanation for the consistent grouping of certain species. The bivalves appear to be divided between rock-dwelling species of mussels and several species of clams living in sandy substrates. In the case of bivalves, large quantities may indicate consumption in feasts, but they occur so consistently in small quantities that they appear to be functioning as signifiers as well. The same is true of the snails, when these appear in the record in large numbers

Unit 11 sampled an area of empty tomb structures on the northwestern slope of the mound while Unit 12 sampled the lower southern slope of the Huaca Prieta mound. Unit 16 lay off the mound to the north and is considered a domestic area. Test Pit 26 extended exploration of the area to the north of Unit 16 and shows very similar results despite the proximity of the Cupisnique mound. Unit 22 is the only unit sampling the Paredones mound in Phase V.

In our review of the faunal remains from these units as in the previous phases, we find definite associations of certain species forming patterns, which we are interpreting as representative of ritual. Counts appear to be less important than presence of particular species. It is difficult to interpret why certain species in these patterns will be present with hundreds or even thousands of specimens at certain times, while at others they are represented by only a few.

The molluscan fauna for Unit 2, on the lower southeastern slope of the mound and near the wetlands, has a few specimens of limpets (*Fissurella* sp.). The dual complementarity for the black snails expressed with *Tegula* spp. and *Prisogaster niger* is present in both levels, though in quantities smaller than 10. The sand-dwelling snails are represented by *Polinices uber* in both layers. The dual complementarity for the brown snails, *Xanthochorus buxea* and *Thais haemastoma* with *Thais chocolata,* is also expressed. The pairing with *Nassarius dentifer* and *Mitra orientales* is expressed. The opposition between mussels and clams is also present. There are no sharks and few bony fish. A pairing of one specimen of anchovy (*Engraulis* *ringens*) and one sardine (*Sardinops* *sagax sagax*) may be a dual expression. There are no marine birds and no mammals except for 2 mice (Muridae). HP-3, present in four layers, has only 16 *Carcharhinus* sp. (requiem sharks) distributed among the four layers. No other analyzable fauna were present.

Units 5, 6, and 7 appear to have been staging areas on terraces on the northeast slope of the mound. Unit 5 is closest to the top of the mound and Unit 7 is lowest on the slope. In Unit 5 there are several species of limpet represented. The dual complementarity of the black snails *Tegula* spp./*Prisogaster niger* is expressed, although the numbers are modest. The sand-dwelling *Polinices uber* is represented only in the three deepest floors. The complementarity of the brown marine snails is expressed with low numbers. *N. dentifer* and *M. orientalis* are absent except *N. dentifer* has 1 in Floor 3, and *M. orientalis* has 1 in Floor 2. The complementarity between mussels and clams is well expressed except in Floor 4. There are a few sharks among the floors, but 4 rays on Floor 5. Floors 6-3 and 1 have bony fish. There is a definite pairing of *Engraulis ringens* and *Sardinops sagax sagax,* anchovy with sardine. These fish may be contrasted to the *Scartichthys* sp or blennies, which are reef fish. Sardine and anchovy are pelagic. There are no remains of marine birds or of mammals. In Unit 6 with two layers, a full array of species is evident in Floor 2. The dual complementarity of the black snails *Tegula* spp. and *Prisogaster niger* is best expressed in Floor 2 where there are 1855 specimens of *P. niger* and 21 specimens of *Polinices uber*, a sand dweller, is present. The complementarity of the brown marine snails is strongly expressed. The dual relation between *N*. *dentifer* and *M. orientalis* is expressed with 104 specimens for *N. dentifer* in Floor 2. The dual complementarity of the mussels and clams is shown. The violet crab, *Platyxanthus orbignyi*, is abundant, with counts of 314 and 24 in Floors 1 and 2, respectively. Sharks and bony fish are represented only by single examples of two Sciaenid species. Marine birds are represented by 1 plover, 2 gulls, 6 pelicans, 20 cormorants and 12 boobies. Mammals are present with 2 sea lions, 2 white-tailed deer, 3 llamas, 10 unidentified mammals, and 4 mice (Muridae). This distribution of marine and terrestrial fauna is very like what was seen in Units 20 and 22 at Paredones; Unit 7 also had only two floors. It had the highest number of keyhole limpets *(Fissurella* sp.) and also a high count of true limpets 14 and 4 (*Collisella orbignyi*). The complementary duality of the black marine snails (*Tegula* spp. and *Prisogaser niger*) is expressed with high counts: *T. atra* 150, *T. euryomphala* 1, *T. tridentate* 54, and *P. niger* 210 in Floor 2, then *T. atra* 343, *T. euryomphala* 1*, T. tridentate* 122, and *Prisogaster* *niger* 400 for Floor 1*. Polinices uber* of the sandy bottoms is well expressed but not excessively so. The dual complementarity of the brown marine snails is expressed with high counts for *X. buxea*: 219 are in Floor 2 and 467 in Floor 1. The counts for *T. haemastoma* were 24 and 65 but those for *T. chocolata* were 34 and 96*.* The duality expressed by *N. dentifer* and *M. orientalis* is moderate. The counts for the giant mussel, *Choromytilus chorus,* were high, 149 and 292, while those for the clam *Protothaca theca* were lower but still strong 45 and 76, respectively. Both were accompanied by other species with counts under ten. The counts for the violet stone crab, *P. orbignyi*, were also high, 93 and 161 specimens, respectively. Five other crab species were represented with counts under ten. The black sea urchin (*Tetrapygus niger*) which had been present in previous units with counts under five, here had counts of 10 and 22 Three sharks are present: *Mustelus* sp. with counts of 31 and 2, the Carcharhinidae with counts of 10 and 1, and Lamnidae, the white shark, with counts of 1 and 3. Among the bony fish, the demersal grunts, *Paralonchurus peruanus*, had counts of 18 and 27; *S. deliciosa* had counts of 2 and 9 while *A. scapularis,* a reef fish had counts of 2 and 1. The numbers of marine birds are modest, particularly considering the small size of plovers and gulls. *Charadrius*, plover, had counts of 1 and 12; gulls had counts of 6 and 1, and cormorants, *Phalacrocorax bougainvillii*, had counts of 2 and 4. Among the mammals there were 5 sea lions and 1 *Cetacea*.

Unit 10 is one of the more complex units on the top of the mound. With two structures and their respective features and three layers, the faunal remains were limited to the basics, in Layers 1 and 3 through 5. There were no limpets. The dual complementarity of the black snails was expressed by *Tegula atra* and *Prisogaster niger* with counts under 40. Except *P. niger* with counts of 112 and 147 in Layers 2 and 3, respectively. *Polinices uber* is expressed with values under 10 only in the layers where there is expression of the dual complementarity, which is expressed in Layers 1-3, and Feature 5. *Polinices uber* is expressed in low numbers before the complementarity of the brown snails (*X. buxea* and *T. haemastoma*/*T. chocolata*). The pairing of *N. dentifer* and *M. orientalis* is expressed in low numbers. The complementary opposition of the mussels and clams is expressed fairly robustly in Layer 1 with a count of 5 *C. Chorus* and 74 *S. algosus* mussels; Layer 2 with a count of 10 *C. chorus* and 121 *S. algosus*; Layer 3 with 91 *C. chorus* and 63 *S. algosus*; and in Structure 2, Feature 1, with 49 *C. chorus,* Feature 3 with 28, Feature 4 with 21, and Feature 5 with 1 *A. ater*, 47 *C.* chorus, 28 *S. algosus* and 1 *C. pellucida*. The corresponding values for the clams are: for Layer 1 counts of 2 for *P. thaca* and 1 for *Petricola rugosa*; for Layer 2, the counts are *P. thaca*, 2, and one each for *E. rufa, Petricola rugosa, Semele solida* and *Mesodesma donacium*; for Layer 3 they are *Anomia peruviana* with a count of 1, *P. thaca* with a count of 11, *E. rufa* with a count of 2, *Gari solida* with a count of 5, and *S. solida* with a count of 7. These relations between mussels and clams are also expressed in Features 4, 5, and 6, in single digits and 2-4 species of each type of bivalve. The number of crabs is very modest, likewise the number of sharks. But there are 4 Carcharhinidae in Layer 1, 6 in Layer 2, together with 1 *Galeorhinu*s, 1 in Layer 3, and in Feature 5, 2 *Galeorhinus*. There were 4 *Myliobatis* sp. in Layer 2. The most significant bony fish are *Galeichthys peruvianus* with 11 in Layer 1, a count of 3 in Layer 2, 1 in Layer 2 (Floor 1), a count of 3 in Layer 3, and a count of 1 in Feature 5 of Structure 2. *Erithmidium maculatum*, menhaden, and *Sardinops sagax sagax*, sardine, are paired in Layer 1, Layer 2, Layer 3, and Feature 5. The Sciaenids, *Paralonchurus peruanus* is also found in Layers 1, 2, and Floor 1 of Layer 2 and Floor 1 of Layer 3 with counts of 22, 9, 4 and 4, respectively; and *Sciaena deliciosa* is found in the same contexts with counts of 7, 10, 1 in Layer 3, and 1 in Floor 1 of Layer 3.

Because it is believed that Unit 10 was the locus for repeated rituals by relatively small groups, it seemed useful to detail the species of mollusks and fish, which we have determined are being used symbolically in a context where we know mortuary rituals were being performed. There is no major difference in the patterning that we see for Unit 10 from that which we see for other contexts where the ritual use is not clear. Consequently we feel confident in pursuing this line of reasoning.

There were very few marine birds reported. In Layer 1 there were 4 cormorants (*P. bougainvillii*) and two boobies *(Sula* sp.). There were also 12 gulls (*Larus* sp.) in Layer 2, 3 cormorants (*P. bougainvillii*) and 6 unidentified birds. There were 3 dolphins (*Delfinus* sp.) reported for Floor 1 of Layer 1. These were the only mammals reported for Unit 10.

Units 11 and 12 each contain relatively little material. In Unit 11, Feature 2 reported 1 thresher shark, *Mustelus*, sp., 1 requiem shark, *Carcharhinus* sp., and 1 guitarfish, *Rhinobatos* *planiceps*. Feature 3 reported 1 requiem shark (*Carcharhinus* sp.) and one white shark (*Lamnidae*). There were 1 *Paralonchurus peruanus* and 1 *Sciaena deliciosa* in Feature 2 and 3 *Cynoscion* sp. in Feature 3, where there was also 1 *Anisotremus scapularis.* In Feature 2, there were 6 marine birds, 5 cormorants, *P. bougainvillii,* and 1 booby, *Sula* sp. In Feature 3, there was one tern, *Larosterna* sp. There were 7 sea lions, *Otaria* sp. in Feature 2, but no mammals in Feature 3. In Unit 12, there were three floors. There were no mollusks in any of these floors. In Floor 1 there were 13 violet stone crabs, *Platyxanthus orbignyi, and* in Floor 2 there were 7. There were 6 sea urchins, *Tetrapygus niger*, in Floor 1 and 5 in Floor 2. Three requiem sharks, Carcharhinidae, and one hammerhead shark, *Sphyrn*a sp., were recovered from Floor 1 and 4 requiem sharks, *Carcharahinus* sp., and 4 hammerhead sharks, *Sphyrna* sp. Were taken from Floor 2. The only fish in this unit are 2 *Paralonchurus peruanus* in Floor 2. The only marine birds were boobies, *Sula* sp., 3 in Floor 2, and 1 in Floor 3.

Unit 16, the domestic site with residential and food preparation functions has consistently displayed some symbolic patterning in the faunal remains. Layers 1 through 5 are no exception. There are two sea cucumbers (*Chiton granosus*) in Layer 4. The keyhole limpets *Fissurella peruviana* and *F. maxima* are present in all five layers. *F. latimarginata* is present in all but Layer 4. *F. limbata* also is present in Layer 4. *F. crassa* is present in Layers 1 and 5. *Fissurella* sp. is present in Layer 4. The true limpets *Collisella orbignyi* are present in all the layers with the following counts: Layer 1, 4; Layer 2, 23; Layer 3, 6; Layer 4, 4; and Layer 5, 9.

The complementary relationship of the black marine snails *Tegula* sp. and *Prisogaster niger* is expressed in the following counts for *Tegula atra*: Layer 1, 235; Layer 2, 125; Layer 3, 98; Layer 4, 89; and Layer 5, 42. *T. euryomphala* is present with a single specimen in Floor 1 and Floor 5. *T*. *tridentata* is found in all layers with the following counts, Layer 1, 12; Layer 2, 9; Layer 3, 12; Layer 4, 8; and Layer 5, 1. The values for *Prisogaster niger* are: Floor 1, 67; Floor 2, 28; Floor 3, 25; Floor 4, 21; and Floor 5, 17.

The snails from sandy bottoms, *Sinum cymba, Polinices uber*, and *Bursa ventricosa* are present in all but Layer 4. There are 12 *P. uber* in Floor 1. These contrast with the brown marine snails, which are found on rocky substrates. Within the brown snails we have suggested that *Thais chocolata*, which is recovered with more difficulty from the Subtidal Zone, contrasts with *X. buxea* and *Thais haemastoma*, which are found in the Intertidal Zone. The values for *X. buxea* are: Floor 1, 72; Floor 2, 18; Floor 3, 19; Floor 4, 25; and Floor 5, 52. For *T. haemastoma* the values for the same contexts are: 41, 13, 11, 10, and 9, respectively. For *T. chocolata*, the values for the same contexts are: 38, 16, 10, 17, and 6, respectively. The pairing of *Nassarius dentifer* and *Mitra orientalis* is almost complete, which a value lacking for *M. orientalis* for Floor 4. The values for *N. dentifer* are: 2, 4, 1, 1, and 4. The values for *M. orientalis* are: 7, 6, 2, and 2 for Layer 5.

For the bivalves, the complementary opposition expressed between the mussels from rocky substrates and the clams from sandy bottoms is very tightly expressed. For the mussels, *Aulacomya ater* is found in Layers 1 and 2 with a single specimen in each. *Choromytilus chorus*, the giant clam, is present in all layers with the following values: 26 for Layer 5, 59 for Layer 4, 74 for Layer 3, 62 for Layer 2, and 87 for Layer 1.*Perumytilus purpuratus* is present in Layer 5 with 2, Layer 4 with 2, Layer 2 with 3, and Layer 1 with 7. *Semimytilus algosus* is present with 1 in Layer 5, 4 in Layer 3, 1 in Layer 2, and 17 in Layer 1. There is a single specimen of *Trachycardium procerum* in Layer 4.

The clams show more diversity because there are more species of which the most important is *Protothaca thaca.* The values for *P. thaca* in the five layers are: 55, 21, 72, 42, 54, respectively. The values for *Euromalea rufa* are 1, 2, 3, 6, 10, respectively. *Petricola rugosa* is present in Layer 3 with 1 and Layer 2 with 2 specimens. *Gari solida* is present in Layer 4 with 1, Layer 3 with 16, Layer 2 with 4, and Layer 1 with 8. There is 1 specimen of *Semele corrugata* in Layer 2. *Semele solida* is found in all layers as follows: 1, 4, 2, 2, 2, respectively. *Donax obesulus* is found in all layers as follows: 1, 2, 6, 8, 3, respectively. There are 2 *Mesodesma donacium* in Layer 1.

Unit 21 is located on the sides of the sunken circular plaza (Unit 15 is in the bottom; see Chapter 7). The area consisted of burial chambers and ritual areas located on terraces above the floor. One chiton (*Acanthopleura echinata*) was recovered from Extension 16, Layer 2. The other contexts had just one specimen from one species, except for Feature 1 in Extension 10, which had 3 (*F. maxima, F. latimarginata*, and *F.* sp.), with one of each and Layer 2 in Extension 10, which had 2 limpet species (*F. peruviana and F. maxima).* The complementarity between *Tegula* sp. and *Prisogaster niger* was expressed fully in all contexts. In Layer 1 the values were *T. atra* with 7, *P. niger* with 17; in Layer 2, *T. atra* with 8 and *P. niger* with11; in Feature 1, Ext. 10, the values were *T. atra* with 28, *T.* *tridentata* with8*,* and *P. niger* with 24; in Ext. 16, Layer 1, they were *T. atra* with18 and *P. niger* with11; in the Extension 17, *T. atra* was with 3 and *P. Niger* with 1; and in Feature 1 in Ext 21, *T. atra* was with 4 and *P. niger* was with 1.

The complementarity between sand-dwelling *Polinices uber* and *Bursa venricosa* and the brown rock snails given below was *P. uber* with a value of 8 in Layer 1, 4 in Layer 2, 4 in Extension 10, Feature 1, 4 in Extension 16, Layer 1, and 8 in Extension 16, Layer 2. There were none in Extension 17 or Extension 21, Feature 1. *Bursa ventricosa* had a value of 1 in Layer 2 and 1 in Extension 16, Layer 2. These snails dwell in sand at the level of habitat with the brown snails below, which live on rocks. We have already indicated that this groups of snails has an internal complementarity between those from the Intertidal Zone *(X. buxea* and *T. haemastoma*) and *T. chocolata* from the Subtidal Zone and consequently more difficult to obtain. The values for all three for Layer 1 are 64, 14, 8; for Layer 2: 11, 11, 12; for Ext. 10, Feature 1: 71, 13, 9; for Extension 16, Layer 1: 14, 5, 14; Extension16, Lay. 2: 39, 23, 21; Layer s 1 and 4 for *X. buxea*, and 1 for *T. chocolata*; Extension 21, Feature 1: 35, 6, 4, respectively. The pairing of *Nassarius dentifer* and *Mitra orientalis* had values of *N. dentifer:* 11 in Layer 1, 5 in Extension 10, 2 in Extension 16, Layer 1, and 2 in Layer 2. *N. dentifer* was not present in the other two contexts. *M. orientalis* was present in all contexts with values of 8, 2, 4, 7, 14, 1, and 5, respectively.

The mangrove mollusk *Anadara* sp. was recovered from Layer 1 of Extension 16, perhaps in company with *Choromytilus chorus* aspart of the grouping below, although it is not found on hard substrates. In the dual expression of the mussels from rocky bottoms and the clams from sandy ones, we have the following values for *Choromytilus chorus*: Layer 1: 1; Layer 2: 5; Extension 10, Feature 1: 5; Extension 16, Layer 1: 1; Extension 15, Layer 2: 5; none from Extension 17; and Extension, 21 Feature 1; 1. The clams are represented by 7 species but not all are found in each context. This does not seem to matter in this case, clearly it is a contrast in habitat. *Anomia peruviana* was present in Extension 17, lens with 1 specimen and in Extension 21, Feature 1 with 5. *Protothaca thaca* is found in Layer 1 with a value of 3; in Layer 2 with 1; in Extension 10, Feature 1 with a value of 9; in Feature 16, Layer 1 with a value of 8; and in Layer 2 with a value of 6. Layer 2 had 1 *Euromalea rufa*; Ext. 16, Layer 1 had a value of 2. There was 1 *Petricola rugosa* in Extension 10, Feature 1, and in the same context there was 1 *Semele solida. Donax obesulus,* a miniature clam, had a value of 13 in Layer 1; of 1 in Layer 2; of 1 in Extension 10, Feature 1; of 1 in Ext. 16 Layer 1; and of 1 in Extension 21, Feature 1. There was 1 specimen of *Mesodesma* *donacium* in Ext. 10, Feature 1.

Marine crabs were well represented in all contexts with the following values for *Platyxanthus orbigny*, the violet stone crab, taking the contexts in order: 21, 3, 7, 12, 20, 3, and 1, respectively. Also present was *Cancer polyodon* found in Layer 1 with 1 specimen and in Extension 10, Feature 1, also with one specimen. There was also 1 specimen of *Cyclozanthops sexdecimdentatus* in that context.Token numbers of black sea urchins, *Tetrapygus niger*, were found in Layer 1 with a value of 3 and in Ext.17, Layer 1, with a value of 2,

There was evidence for sharks and rays in several contexts: In Extension 10, Feature 1, there were 3 *Carcharhinus* sp. and 2 *Alopias* sp. In Extension 16, Layer 1, there were 5 *Galeorhinus* sp. and 6 *Isurus* *oxyrinchus*. There were 6 *Galeorhinus* sp. in Layer 2 of Ext. 16 as well and 1 in Extension 17, Layer 1. The results for bony fish were scant. There was 1 *Ethmidium maculatum* in Extension 10, Feature 1, and 4 *Paralonchurus peruanus,* one of the Sciaenid fish. This same species was present in Extension 16, Layer 1 and Layer 2, with values of 5 and 7, respectively; and in Ext. 21, Feature 1, with a value of 2. *Sciaena deliciosa,* another Sciaenid was present in Ext. 16, Layers 1 and 2 with values of 2 and 1, respectively; and in Extension 17 with 1 specimen. All of the marine birds came from Extension 16 with 1 duck (*Anas* sp.) in Layer 1 and 1 Laridae, and 4 boobies (*Sula variegata)* in Layer 2*.*

Mammalian fauna was represented in Extension 10, Feature 1, by 3 Muridae (probably field mice); and were also present with a count of 2 and 1 in Layers 1 and 2 of Ext. 16, respectively. There was also evidence for 1 sea lion (*Otaria* sp.) in Extension 10, Feature 1, and for 5 unidentified terrestrial mammals in Extension 16, Layer 2.

Unit 23 covered an extensive area on the top of the Huaca Prieta mound characterized by the presence of at least 8 structures associated with burials and ritual. There are a total of nine layers associated with the unit. Faunal remains are abundant in Layer 1; there are a few in Layer 2, and the others have only one or two specimens. Structures 1, 2, 3, 7 and 8 also had multiple layers with faunal remains, but very low counts. Nevertheless, these obviously ritual contexts show the same patterns we have noted in less overtly ritual contexts. The counts are highest in Layer 1 where limpets have the following counts: *Fissurella peruviana,* 98; *F. maxima*, 10; *F. latimarginata,* 16; and *F. limbata*, 1. There were no other limpets or any mollusks in any of the 1ayers. The dark snails, dwelling on rocks had 99 *Tegula atra*, 5 *T. euryomphala*; 1 *T. tridentata* and 201 *Prisogaster nige*r. *Calyptraea trochiformis* has a count of 1; *Crepipatella dilatata* has a count of 3; *Sinum cymba* has a count of 7, and *Polinices uber* has a count of 289 specimens. *Bursa ventricosa* had 7. The first 2 are found on hard substrates and are not believed to form the contrasting pair with the snails known to live on sandy substrates (*Polinices uber* and *Sinum symba*). The brown snails dwelling on rocks in the Intertidal Zone had counts of *Xanthochorus buxea*, 215, and *Thais haemastoma*, 286; the species of brown snail from the Subtidal Zone, *Thais chocolata,* had 287. The pairing of *Nassarius dentifer* with 25 specimens and *Mitra orientalis* with 73 was also expressed. There were a total of 12 freshwater snails from 3 species, presumed to have come in attached to reeds on which they feed. The dual complementarity expressed by the mussels of rocky substrates and the clam from sandy bottoms has *C. chorus* with 10, *Perumytilus purpuratus* with 1, and *Semimytilius algosus* with 11. There was one scallop (*Argopecten purpuratus*) in this context but exotic to it. The clams are *Protothaca thaca* with 47, *Euromalea rufa* with 1, *Semele solida* with 1, *Spisula adamsi* with 3, and *Donax obsulus* with 7.The violet stone crab (*P. orbignyi*) is present with 5 specimens. For the sharks, there were 6 *Galeorhinus* sp*.* in Layer 1, 369 *Carcharhinus* sp. in Layer 1, and 4 in Layer 2; 12 *Sphyrna* sp. in Layer 1; 22 *Alopias* sp. in Layer 1, and 1 in Layer 2; 6 *Isurus oxyrinchus* in Layer 1; 5 *Squatina armata* in Layer 1; and lastly, 6 *Rhinobatos planiceps* in Layer 1.

Most of the bony fish recovered are in Layer 1 and the numbers are modest. There was 1 specimen of *Erithmidium maculatum* in Layer 3; 1 of *Mugil cephalus* in Layer 1; and 10 specimens of *Trachurus symmetricus murphyi* in Layer 1. *Paralonchurus peruanus* had a count of 39 in Layer 1, *Cynoscion* sp. had 5 specimens, and *Thunnus albacares* had 10. There were 6 *Sciaena deliciosa* in Layer 2 and 2 *Sciaena starksi* in Layer 1. Finally, there was 1 *Anisotremus scapularis* in Layer 2.

Layer 1 reported 17 gulls (*Larus* sp.); there was 1 in Layer 2. There were 6 pelicans (*Pelecanus thagus*) in Layer 1, 22 cormorants (*Phalacrocorax bougainvillii*), and 7 boobies (*Sula* *variegata*). There were 96 unidentified birds in Layer 1 and 6 in Layer 2. For the mammals, there were 8 Muridae in Layer 1; 53 sea lions (*Otaria* sp.) in Layer 1, and 1 in Layer 2; and 7 whales (Balenidae) in Layer 1 and 4 in Layer 9. There were 27 unidentified marine mammals in Layer 1, 1 in Layer 3, and 2 in Layer 9.

There were three layers in Structure 1 with 4 *Fissurella maxima* in Layer 2 and 7 in Layer 3. For the black snails there were 16 *Tegula atra* and 5 *Prisogaster niger* in Layer 2 and 30 *T. atra* and 21 *P. niger* in Layer 3. There were 3 specimens of *Polinices uber* in Layer 2 and 9 in Layer 3. The brown snails, *Xanthochorus buxea* were present with 3 specimens in Layer 2 and 3 in Layer 3. *Thais haemastoma* had 1 specimen in Layer 2 and 13 in Layer 3. *Thais chocolata* had 1 specimen in Layer 2 and 5 in Layer 3. *Mitra orientalis* had 3 specimens in Layer 2 and 17 in Layer 3. There were 4 freshwater snails in Layer 3.

For the bivalves there was 1 specimen of *Choromytilus chorus* in Layer 2 and 6 in Layer 3. There was no corresponding clam present in Layer 2 but 3 *Trachycardium procerum* in Layer 3. Crabs were represented by 1 violet stone crab (*Platyxanthus orbignyi*) in Layer 2 and 6 in Layer 3. There were 2 amphibians (Leptodactylidae) in Layer 2.

Sharks were represented in Layer 2 by 9 *Carcharhinus* sp. and 3 *Squatina* *armata*. Bony fish were present as follows: 54 *Paralonchurus peruanus* in Layer 2 and 2 in Layer 3; *Cynoscion* sp. and *Thunnus albarcares* both had a count of 7 in Layer 2. *Sciaena starksi* had a count of 1.

For the marine birds, there were 2 gulls (*Larus* sp.) in Layer 2. There were 2 cormorants *(P. bougainvillii*) and 1 booby (*Sula variegata*) in Layer 2. There was also 1 duck (*Anas* sp.). For the Mammals, there was 1 Muridae in Layer 2 and 3 sea lions (*Otaria* sp.) in Layer 1, 8 in Layer ,; and 1 in Layer 3. There were 3 unidentified terrestrial mammals in Layer 2.

Structure 2 had a total of 7 layers, all but Layer 6 reported some faunal material. For the limpets, *Fissurella peruviana* reported 27 in Layer 1, 1 in Layer 2, 3 in Layer3, and 2 in Layer 5. There was 1 *F. maxima* in Layer 1. *F. latimarginata* had 2 specimens in Layer 1, 1 in Layer 3, and 1 in Layer 4. There were 2 *F. crassa* in Layer 1 and 1 in Layer 7. There was 1 specimen of *Fissurella* sp. in Layer 2 and 1 in Layer 5.

*Tegula atra* was present in Layer 1 with a count of 85, in Layer 2 with 22, in Layer 3 with 17, in Layer 4 with 1, in Layer 5 with 6, and in Layer 7 with 49*. T. tridentata* had a count of 1 in Layer 2, and of 2 in Layer 7. *Prisogaster niger* had a value of 99 in Layer 1, 85 in Layer 2, 10 in Layer 3, was absent from Layer 4, had a value of 9 in Layer 6, and 7 in Layer 7.

There were 4 *Crepipatella dilatata* in Layer 7 and 2 *Sinum cymba* in Layer 1. *Polinices uber* was present in Layer 1 with 54, in Layer 2 with 28 and in Layer 3 with 4; it was absent from Layer 4; in Layer 5 there were 7 and in Layer 7 there were 3. There was 1 *Bursa ventricosa* in Layer 2. *Xanthochorus buxea* is present in Layer 1 with 46, in Layer 2 with 70, in Layer 3 with 2, absent from Layer 4, in Layer 5 with 10; and in Layer 7 with 7. *Thais haemastoma* had a value of 55 in Layer 1, 49 in Layer 2, 8 in Layer 3, 1 in Layer 4, 2 in Layer 5, and 3 in Layer 7. *Thais chocolata* had a count of 39 in Layer 1, 21 in Layer 2, and 6 in Layer 3; it was absent from Layer 4 but had a count of 4 in Layer 5 and a count of 2 in Layer 7.

There was 1 *Crassilabrum crassilabrum* in Layer 1. *Nassarius dentifer* was present with a count of 7 in Layer 1, 18 in Layer 2, 1 in Layer 3 and 8 in Layer 5. *Mitra orientalis* had a count of 14 in Layer 1, 20 in Layer 2, 3 in Layer 3, 1 in Layer 4, 7 in Layer 5 and 2 in Layer 7. There were 2 freshwater snails (*Helisoma* sp.) in Layer 1 and 1 in Layer 5.

The complementarity among the bivalves is expressed by *Choromytus chorus* with a value of 4 in Layer 1; 3 in Layer 2; 1 in Layer 3; 1 in Layer 4; 3 in Layer 5 and 86 in Layer 7. *Semimytilus algosus* had 4 specimens in Layer 1; 1 in Layer 2; and 1 in Layer 7. The clams were expressed by more species. In Layer 1, *Trachycardium procerum* waswith 1 and *Protothaca thaca* with 7; *P. thaca* had a value of 2 in Layer 2; 3 in Layer 3; 1 in Layer 4; 1 in Layer 5; and 11 in Layer 7. *Euromalea rufa* is present in Layer 1 with 1; Layer 3 with 1; and in Layer 5 with 1. *Petricola* *rugosa* is present in Layer 5 with 2 specimens. *Donax obesulus* is present in all layers with values of 6, 4, 3, 3, 17, and 6, respectively. There is 1 specimen of *Mesodesma donacium* in Layer 5 and 4 of *Pholas chiloensis* in Layer 7. Violet stone crabs, *Platyxanthus orbignyi,* is present in all Layers with values of 7, 6, 11, 5, 7, and 16, respectively. *Cancer polyodon* is present in Layer 2 with 1 specimen; Layer 3 with 1; and Layer 7 with 1.

The shark *Carcharhinus* sp. is present in Layer 2 with a value of 1; in Layer 3 with 1; in Layer 4 with 7; in Layer 5 with 1; and in Layer 7 with 4. *Sphyrna* sp. is present in Layer 4 with 1 specimen. Among the bony fish there is 1 specimen of *Erithmidium maculatum* in Layer 1; and 1 in Layer 2. *Trachurus symmetricus murphyi* is present in Layer 1 with 1 specimen. *Paralonchurus peruanus* is present in Layer 1 with a value of 8; in Layer 2 with a value of 6; in Layer 5 with 2; and in Layer 7 with 2. *Cynoscion* sp. and *Thunnus albacares*  are both present in Layer 2 with 1 specimen each. *Anisotremus scapularis* is present in Layer 3 with a count of 3. *Sarda chiliensis chiliensis* is present in Layer 1 with 1 specimen.

Humboldt’s penguin, *Spheniscus humboldti* is found in Layer 3 with a count of 1. *Larus* sp. is found in Layer 2 with a count of 1 and in Layer 4 with a count of 2. The Ardeidae are present in Layer 2 with 1 specimen. Layer 3 has 3 pelicans, *Pelicanus thagus;* and there are 5 cormorants in Layer 7, *P. bougainvillii.* For the mammals, there are 3 Muridae in Layer 1. There are 10 guinea pigs, *Cavia porcellus,* in Layer 5. The sea lions, *Otaria* sp., have a count of 2 in Layer 2; 1 in Layer 3; 1 in Layer 4; and 2 in Layer 7. There is 1 unidentified marine mammal in Layer 7; and 2 unidentified terrestrial mammals in Layer 3.

Layer 3 in Structure 3 reported only sharks. *Galeorhinus* sp. had a count of 1. *Carcharhinus* sp. had a value of 54.

Structure 7 had faunal material from Layers 1, 2, 3, 4, and 6. The limpets are represented by four species. *Fissurella peruviana* is present in Layer 1 with a value of 54; in Layer 2 with 7; in Layer 3 with 14; in Layer 4 with 3. *F. latimarginata* is found in Layer 1 with 5 specimens; and Layer 2 with 1 specimen. There is 1 specimen of *F. limbata* in Layer 6. There is 1 *F. crassa* in Layer 1.

*Tegula atra* is present with values of 280 in Layer 1; 23 in Layer 2; 69 in Layer 3; 12 in Layer 4; and 14 in Layer 6. *T. euryomphala* is present with 4 specimens in Layer 1; 1 in Layer 3; and 1 in Layer 4. *T. tridentata* is present with a count of 1 in Layer 1; 1 in Layer 2; 2 in Layer 3; 1 in Layer 4; and 1 in Layer 6. *Prisogaster niger* has counts of 158 in Layer 1; 13 in Layer 2; 48 in Layer 3; 11 in Layer 4; and 4 in Layer 6.

*Cerethium stercusmuscarum* and *Calyptraea trachiformis* are present in Layer 1 with 1 specimen each. There are 2 specimens of *Crepipatella dilatata* in Layer 1; and one each in Layers 4 and 6. *Sinum cymba* is present in Layer 1 with a count of 3; *Polinices uber* is present in Layer 1 with a count of 109; Layer 2 with a count of 4; Layer 3 with one of 28; and Layer 4 with 6 specimens. *Bursa ventricosa* is present in Layer 1 with a count of 4; and in Layer 2 with a count of 2.

The brown snails are well represented. *Xanthochorus buxea* is present in Layer 1 with a value of 110; in Layer 2 with 14; in Layer 3 with 25; in Layer 4 with 4; and in Layer 6 with 2. *Thais* *haemastoma* has a count of 147 in Layer 1; 14 in Layer 2; 21 in Layer 3; it is absent in Layer 4; and has a value of 2 in Layer 6. *Thais chocolata* is present in Layer 1 with a value of 109; in Layer 2 with a value of 8; in Layer 3 with a value of 13; in Layer 4 with a value of 3 and in Layer 6 with a value of 4.

*Nassarius dentifer* is represented in Layer 1 with a count of 7; in Layer 2 with 1; in Layer 3 with 18; and in Layer 4 with 1. It is absent in Layer 6. *Mitra orientalis* has a value of 49 in Layer 1; is absent in Layer 2; has a value of 11 in Layer 3; 4 in Layer 4; and 1 in Layer 6. There is 1 specimen of *Cancellaria urceolata* in Layer 1. There are a total of 14 freshwater snails: In Layer 1, 2 *Helisoma peruvianum* and 2 *Physa venustula*. In Layer 2, 3 *Helisoma* sp. and 6 *Physa* *venustula*. In Layer 3 there was 1 *Helisoma* sp.

In the bivalves, the mussels are represented by *Choromytilus chorus* in Layer 1 with a count of 9; in Layer 2 with 2; in Layer 3 with 1, in Layer 4 with 3; and in Layer 6 with 15. *Semimytilus algosus* had 2 specimens in Layer 1; and 2 in Layer 2. There was a scallop, *Argopecten* sp., in Layer 2 of Structure 7.

The clams are *Protothaca thaca*, in Layer 1 with a count of 8; in Layer 2 with 2; in Layer 3 with 4; in Layer 4 with 3; in Layer 6 with 4. *Euromalea rufa* was present in Layer 1 with a value of 2; in Layer 3 with 1; and in Layer 6 with 1. There was also 1 specimen of *Petricola rugosa* in Layer 6. *Semele solida* was present in Layer 3 with a count of 1; and in Layer 6 with a count of 1. *Donax obesulus,* the miniature clam, had a value of 16 in Layer 1; 1 in Layer 3; 1 in Layer 4 and 5 in Layer 6.

The violet stone crab was present in all layers with the following counts: 3, 4, 2, 1, and 3, respectively.

The counts for sharks were 3 *Galeorhinus* sp. in Layer 3. *Carcharhinus* sp. had a value of 3 in Layer 1; 40 in Layer 2; 26 in Layer 3; it was absent from Layer 4; and 8 in Layer 6. There were 14 *Sphyrna* sp. in Layer 1 and 7 in Layer 3. There were 3 *Alopias vulpinus* in Layer 2 and 1 *Alopius* sp. in Layer 1. There were 2 *Squatina armata* and 1 *Rhinobatis planiceps* in Layer 3. There were low counts for the bony fish. *Paralonchurus peruanus* was present with one specimen each in Layer 1, Layer 2 and Layer 3. *Cynoscion* sp. was present with a count of 1 in Layer 2. *Sciaena deliciosa* had a count of 4 in Layer 2 and 1 in Layer 3*. S. gilberti* was present with one specimen in Layer 2.

There was one gull, *Larus* sp., in Layer 1 and 1 cormorant, *Phalacrocorax bougainvillii,* in Layer 6. Sea lion had a value of 11 in Layer 1; 1 in Layer 2; and 1 in Layer 6. There was 1 unidentified terrestrial mammal in Layer 1.

Structure 8 in Unit 23 has 10 Layers, numbered 1 through 10. Not all layers have specimens, but the mollusks are fairly well represented with low counts. Four limpet species are represented. *Fissurella peruviana* with counts of 3 in Layer 1; 1 in Layer 4; 3 in Layer 8; 1 in Layer 9. *F. maxima* has a count of 1 in Layer 1; 1 in Layer 6; and 1 in Layer 8. *F*. *latimarginata* has 1 in Layer 3; 1 in Layer 4; 3 in Layer 6; 2 in Layer 8; and 1 in Layer 9.

The *Tegula/Prisogaster* complementarity of the black, rock-dwelling snails is expressed more fully with *Tegula atra* with a count of 258 in Layer 1; absent in Layer 2; 243 in Layer 3; 23 in Layer 4; absent in Layer 5; 3 in Layer 6; 2 in Layer 7; 28 in Layer 8; 2 in Layer 9 and 1 in Layer 10. *T. euryomphala* is not present. *T. tridentata* is present in Layer 1 with 7; in Layer 3 with 6 and in Layer 9 with 2. *Prisogaster niger* is present with a count of 66 in Layer 1; absent in Layer 2; has 62 in Layer 3; 12 in Layer 4; is absent in Layer 5; has 2 in Layer 6; is absent in Layer 7; has 3 in Layer 8; 3 in Layer 9 and 2 in Layer 10. This relation is completely absent in Layers 2, and 5.

The snails living on sandy substrates are represented as follows. *Sinum cymba* with a count of 1 in Layer 1. *Polinices uber* has a count of 5 in Layer 1; is absent in Layer 2; has 2 in Layer 3; 1 in Layer 4; is absent in Layer 5; has 1 in Layer 6; is absent in Layer 7; has 4 in Layer 8; 1 in Layer 9 and is absent in Layer 10. The three species of brown snail are present as follows: *Xanthochorus buxea* has a value of 2 in Layer 1; is absent from Layer 2; has a value of 2 in Layer 3; has 10 in Layer 4; is absent from Layers 5 and 6; has 1 in Layer 7; is absent from Layers 8 and 9; and has a value of 1 in Layer 10. *Thais haemastoma* has a count of 9 in Layer 1; is absent from Layer 2; has 6 in Layer 3; 7 in Layer 4; is absent from Layer 5; has 1 in Layer 6; is absent from Layer 7; has 7 in Layer 8; 1 in Layer 9; and is absent in Layer 10. *Thais chocolata* has values of 7 in Layer 1; is absent from Layer 2; has 5 in Layer 3; 8 in Layer 4; is absent from Layer 5; has 3 in Layer 6; 2 in Layer 7; 7 in Layer 8; and 4 in Layer 9; and is absent from Layer 10. There is no expression of this relationship in Layer 2 or Layer 5; all other layers have some expression; the relation is fully expressed only in Layers 1, 3, and 4, that is, in the latter part of the sequence. It is totally absent from Layers 2 and 5.

*Mitra orientalis* has values of 1 in Layer 1; absent in Layer 2; 1 in Layer 3; 2 in Layer 4; absent in Layers 5, 6, and 7; has 2 Layer 8; and is absent in Layer 10. Note that *Nassarius dentifer* is not expressed at all, however, this is not that uncommon and also that *M. orientalis* is absent from the three layers where there is no expression of the preceding relation with the brown snails.

There is 1 freshwater snail (*Helisoma* sp.) in Layer 1.

The dual complementarity between mussels of rocky substrates and clams of sandy bottoms is present and expressed except in Layers 2 and 5. *Choromytilus chorus* is present in Layer 1 with 2; absent in Layer 2; in Layer 3 with 1; absent in Layers 4 and 5; present with 3 in Layer 6; absent in Layer 7; has 1 in Layer 8; 2 in Layer 9; and 2 in Layer 10. *Semimytilus algosus* is present in Layer 3 with 1; in Layer 4 with 1; and in Layer 9 with 1. The clams are represented by *Protothaca thaca* has a count of 2 in Layer 1; 1 in Layer 7; 1 in Layer 9; and 2 in Layer 10. *Euromalea rufa* is present in Layer 6 with 1; Layers 9 and 10 with 1 specimen each. *Donax obesulus* has a count of 1 in Layer 1; 3 in Layer 4; 2 in Layer 6; 3 in Layer 8; 2 in Layer 9; and 1 in Layer 10. There is no expression of this relation between mussels and clams in either Layers 2 or 5.

The violet stone crab, *Platyxanthus orbignyi,* has a count of 8 in Layer 1 is absent in Layer 2; has 5 in Layer 3; 1 in Layer 4; is absent in Layer 5; has 1 each in Layers 6, 7, and 8; and has 2 in Layer 9; and is absent in Layer 10.

Sharks are represented by 1 specimen of *Carcharhinus* sp. in Layer 3 and 3 in Layer 4. There is also 1 specimen of *Alopias* sp. in Layer 4. *Isurus oxyrinchus* is present in Layer 10. The bony fish are present in Layer 4 with a count of 11 *Paralonchurus peruanus* and 16 *Sciaena deliciosa*. *Sciaena starksi* is present in Layer 6 with 2 specimens and in Layer 7 with 5. There are 22 unidentified fish in Layer 7.

There are no marine birds reported for Layer 1; pelican, *Pelecanus thagus* has a count of 1 in Layer 2; there is 1 cormorant (*P. bougainvillii*) in Layer 3; Layer 4 has 6 gulls, L*arus* sp., 16 *Pelecanus thagus*; and 15 unidentified birds; Layer 5 has 2 plovers, *Haematopus* sp., 2 boobies, *Sula* sp., and 3 unidentified birds. There is 1 gull, *Larus* sp., in Layer 6 and 1 cormorant *(P. bougainvillii*) in Layer 7. The mammalian fauna in Layer 2 were 1 sea lion, *Otaria* sp., and remains of 4 whales, *Balaenidae*. In Layer 7 there were 2 dolphins, *Delphinus* sp.

Pit 26 lies to the north of Unit 16 and is considered to be a part of that domestic site (see Chapter 7). The faunal remains are similar in pattern to those from Unit 16. There are two layers in Pit 26. There are the following values for keyhole limpets: Layer 1 has 1 specimen of *Fissurella maxima* and 1 of *F. limbata*. In Layer 2 there are: *F. peruviana* with a count of 3; *F. maxima* with 47; *F.* *limbata* with 1; and 2 specimens of *Collisella orbignyi*, the true limpet. The *Tegula/Prisogaster* relation in the black snails is expressed. In Layer 1, *Tegula atra* has a count of 39; *T.* *euryomphala* has 3; *T. tridentate* has 2; and *P. niger* has 181. In Layer 2 the values are: *Tegula atra* 53; *T. euryomphala* 1; *T. tridentata,* 4; and *P. niger,* 152.

The snails from sandy substrates in Layer 1 are: *Crepipatella dilatata* with a value of 3*; Polinices uber* with a value of 16. For Layer 2 the values are: *Calyptrea trochiformis*, 2*; Crepipatella dilatata, 2; Sinum cymba, 1*, and *Polinices uber, 26.* The relation between the brown snails is expressed as follows: Layer 1: *Xanthochorus buxea*, 132; *Thais haemastoma,* 62; *Thais chocolata* 43. In Layer 2 they are: *X*. *buxea* 57; *T. haemastoma*, 48; *T. chocolata* 31. There were 2 *Crassilabrum crassilabrum* in Layer 1. There were 242 specimens of *Nassarius* *dentifer* in Layer 1 and 119 in Layer 2. There were 14 *Mitra orientalis* in Layer 1 and 16 in Layer 2. There were 2 specimens of *Cancellaria urceolata* in Layer 1 and 3 in Layer 2.

In the complementary relation between mussels and clams, the mussels were represented by *Choromytilus* with 4 and *Semimytilus algosus* with 1 specimen. The clams are represented by *Protothaca thaca* with a count of 6 in Layer 1, and 13 in Layer 2; *Semele* *corrugata* with a count of 1 in Layer 1, and 2 in Layer 2; and *Donax obseulus* with 17 in Layer 1, and 24 in Layer 2. Marine crabs are represented by the violet stone crab, *Platyxanthus orbignyi* with a count of 21 in Layer 1 and 17 in Layer 2.

Sharks are represented by *Mustelus* sp. with a count of 1 each in Layers 1 and 2. *Carcharhinus* sp. had a value of 17 in Layer 1, and 11 in Layer 2. There were 2 *Alopias* sp. in Layer 1. *Myliobatis* was present in Layer 1 with 2 specimens, and in Layer 2 with 1. There were 2 specimens each of *Paralonchurus peruanus* in Layer 1 and Layer 2. There was 1 specimen of *Paralabrax* sp. in Layer 2.

Marine birds in Layer 1 were tern, *Larosterna* with a count of 1; cormorant, *P. bougainvillii* with 1, In Layer 2 there were 2 cormorants (*P. bougainvillii*) and 2 unidentified birds. Two fruit bats, *Phyllostomidae*, from Layer 2, were the only mammalian fauna reported.

Unit 22 is the only unit from Paredones reported for Phase V. It is represented by Floors 1, 2, and 3. The patterning of the molluscan fauna is very similar to Pit 26 and other units from Huaca Prieta.

Keyhole limpets are represented by the following species and counts for Floors 1, 2 and 3: *Fissurella peruviana*: 30, 8, and 9; *F. maxima:* 11, 9, and 29; *F*. *latimarginata*: 1, 1, and 7; *F. crassa*: 6 in Layer 1 and 2 in Layer 3. There were 2 specimens of *Fissurella* sp. in Floor 1. *Collisella orbignyi*, the true limpet, is present with 3 in Floor 1 and 8 in Floor 3. The *Tegula*/*Prisogaster* complementary relation between the black rock snails is expressed in by the following counts in Floors 1, 2, and 3, for *Tegula atra*: 56, 4, 22; for *Tegula euryomphala* 2, 1, and 1; and for *Prisogaster niger:* 72, 21, and 47.

Snails from sandy bottoms are as follows: in Floor 3, *Cerithium stercusmuscarum* with a value of 1. *Sinum cymba* is present in all three layers with these values: Floor 1, 3; Floor 2, 1; Floor 3, 2. *Polinices uber* has these counts: Floor 1, 78; Floor 2, 40; Floor 3, 181.

The relations of the brown snails from rocky substrates are fully expressed: *Xanthochorus buxea* has the following counts in Floors 1, 2, and 3: 37, 21, and 36; *Thais haemastoma*: 61, 36, and 99; *Thais chocolata*: 54, 26, and 64, respectively. Additionally there were 2 specimens of *Thais delessertiana* in Layer 1 and 6 in Layer 3. There was 1 example of *Solenosteira fusiformis* in Floor 3. *Nassarius dentifer* has a value of 3 in Floor 1 and of 3 in Floor 3. It is absent in Floor 2. *Mitra orientalis* is present in all three Floors with counts of 5, 7, and 6. In Floor 3 there is also 1 specimen of *Cancellaria urceolata*. There is one freshwater snail (*Helisoma peruvianum*) in Floor2.

The complementary relation between mussels, found on hard substrates, and clams found on sandy bottoms is present and fully expressed. The mussels are: *Choromytilus chorus* found in all three layers with a count of two in each layer. *Perumytilus purpuratus* has a value of 66 in Floor 1 and 9 in Floor 3. *Semimytilus algosus* has a count of 2 in Floor 1 and a count of 1 in Floor 3. For the clams in Floor 1 *Protothaca thaca* has a count of 10; *Euromalea rufa* has 2; and *Donax obesulus* has 6. In Floor 2 the counts are 4 for *P. thaca*; 1 for *E. rufa*. In Floor 3, there is 1 *Trachycardium procerum,* 2 *P. thaca*, 1 *E. rufa*, and 1 *Donax obesulus.*

*Platyxanthus orbignyi,* the violet stone crab is found in all three levels with the following counts: Floor 1, 13; Floor 2, 1; and Floor 3, 29. Additional species are found in Floor 2, *Cancer polyodon* with a count of 1; and in Floor 3, *C. polyodon* with a count of 5, and *Ocypode guadichaudi* with a count of 1. There were 5 specimens of *Tetrapygus niger*, black sea urchin in Floor 1.

Shark species were recovered in all three layers. In Floor 1 there was 1 *Carcharhinus* sp. In Floor 2, there were 2 *Galeorhinus* sp., 25 *Cahcharhinus* sp., and 2 *Sphyrna* sp. In Floor 3 there were 2 *Galeorhinus* sp., 4 *Carcharhinus* sp., 8 *Sphyrn*a sp. and 1 *Isusrus* sp. The largest number of species and counts for bony fish were in Floor 2. Floor 1 had only 2 unidentified fish. Floor 3 had 1 specimen of *Sciaena starksi* and 1 unidentified fish. Floor 2, in contrast, had the following: 16 *Mugil cephalis*; 3 *Paralychthys* sp.; 11 *Paralonchurus peruanus,* 1 *Cynoscion* sp. 5 *Sciaena deliciosa*, and 11 *Anisotremus scapularis*, and 1 *Sarda chiliensis chiliensis*. There were also 27 unidentified fish. We know that *Galeorhinus* sp. and *Carcharhinus* sp. enter brackish water in the estuary or in marine wetlands, but we also saw that *Carcharhinus* sp. and presumably the other shark species were taken in the near shore (see notes for Unit 13). The Sciaenids (*Sciaena starksi, S. deliciosa, Paralonchurus peruanus*, and Cynoscion are all demersal and found in the estuary and near shore. Contrasted with these fish are *Anisotremus* *scapularis*, found over rocky reefs and *Sarda chiliensis chiliensis* is pelagic, but can approach the shore. We have suggested that one possible pattern of contrast is between demersal and inshore fish and those occupying the rocky reefs or pelagic.

The marine birds have their highest counts and species diversity in Floors 2 and 3. Floor 1 has 6 cormorants (*P. bougainvillii)*. Birds present in Floor 2 are *Haemotopus* sp., plover, with a count of 1; *Larus* sp., gull, with a count of 19; *Pelecanus thagus*, pelican, with a count of 17; *Phalacrocorax bougainvillii*, cormorant, with a count of 58; *Sula variegata,* booby, with a count of 12; and 37 unidentified birds. Floor 3 has *Diomedea* sp. albatross with a count of 10; *Larus* sp. gull, with a count of 2; *Pelecanus thagus*, pelican, with a count of 4; *P. bougainvillii,* cormorant, with a count of 31; *Sula* sp., booby, with a count of 10, and 20 unidentified birds.

The mammalian fauna for Floor 1 is 4 *Otaria* sp., sea lions; 1 *Lama* sp., llama; and 2 unidentified terrestrial mammals. In Floor 2 there were 28 sea lions, *Otaria* sp. In Floor 3 there were 101 sea lions, *Otaria* sp.; and 1 whale, *Balaenidae*.

The faunal remains from Unit 22 in Paredones are consistent with the earlier levels, with patterning in the molluscan fauna similar to that from Huaca Prieta and the domestic sites, but an emphasis on the sharks found in wetlands or estuary, and on demersal fish.