**Big Picture:** The Chesapeake Bay is the largest estuary in the United States. For well over a century, the Bay has been devastated by overfishing, pollution, agricultural runoff, and climate change. Anthropogenic environmental change is well documented in contemporary records, especially the collapse of the Bay’s oyster fishery and associated changes in ecosystem structure. Questions remain about the nature of the oyster fishery in prehistoric times, when Native Americans intensively harvested oysters and other bay resources for millennia. How intensively were oysters harvested compared to other shellfish and fauna? What were the baselines of oyster populations like prior to historical over-exploitation? How did prehistoric harvesting affect the size and age distribution of ancient oyster populations? These questions related to shifting biodiversity baselines can be addressed using archaeology (Erlandson and Rick 2010). We use archaeology to introduce a prehistoric perspective on the ecology of the Chesapeake Bay and to analyze how Native peoples may have influenced its structure and ecology, most notably by intensive harvesting of the Eastern oyster (*Crassostrea virginica*).

**Site:** The Chesapeake Bay has a long history of human occupation spanning the Holocene and terminal Pleistocene, making it an ideal site for investigating ancient human-environment interactions. Excavations were carried out at a number of shell middens at Fishing Bay on Maryland’s Eastern Shore (figure 1). We focus on a site (18-DO-35) on Elliot’s Island in the southern part of Fishing Bay. This is an area with large and dense shell middens that provide evidence for focused and likely seasonal harvest of the Eastern oyster. Site 18-DO-35 at Fishing Bay on Maryland’s Eastern Shore (figure 2) dates from AD 1460-1510, part of the Late Woodland period and just prior to initial contact with Europeans. The site is located 3–2 m high on a terrace on the southwestern side of the island and covers approximately 50 m along the sea cliff and 20–30 m inland. Oyster shells and small amounts of pottery are visible on the site surface and eroded along the shore.

**Methods:** A 1 x 0.5 m unit, a 50 x 50 cm unit, and a 25 x 25 cm column sample were excavated in intact deposits in the sea cliff at 18-DO-35 in Spring 2010. We identified and sorted all materials (1/8-inch mesh) from the column samples, while ribbed mussel, clam, land snails, two-groove oostomes, barnacle, slipper shells, and other materials combine for less than 1% of the assemblage. These data demonstrate that the people who occupied 18-DO-35 were focused on the harvest of oysters. Since 99.8% of the sample were oyster shells, we looked at the effects of this focused predation on the age (figure 8) and size (figure 9) distribution of oysters over the roughly 60 years (AD 1450-1510) represented by our sample.

Level 3 contains the earliest deposition of oyster hinges, while level 1 represents the most recent. Intensively harvesting these shellfish may have affected the quantity of larger, older oysters available for subsistence, thus resulting in the observed drops in average age and height. However, where the age distribution increases slightly in level 1, the height does not, suggesting a possible drop in the growth rate due to sustained and focused predation, a change that is more significant than age or size distributions alone.

**Subsistence Strategies and Human Harvest of Eastern Oysters**

Excavation of 18-DO-35 produced large amounts of oyster shell, including whole valves and fragments, and a small number of artifacts, other shellfish, and vertebrate remains (figure 6).

**Conclusions and Implications:** Oyster harvesting at 18-DO-35 was a very focused activity. Within a span of only 50-60 years, we can demonstrate a change in age and size distributions of oysters harvested from the Chesapeake Bay due to intense human predation. Our next step is to perform stable isotope analysis of the oyster remains and investigate the midden at 18-DO-439 on Elliot’s Island, which represents a period of occupation just prior to 18-DO-35. This broader timescale will enable a diachronic analysis of the development of seasonal subsistence on oysters in Fishing Bay.

**References and Acknowledgements**


