

# Ancient fish hooks found on Okinawa suggest earlier maritime migration than thought

19 September 2016, by Bob Yirka



Pieces of finished (Upper) and unfinished (Lower) fishhooks from Sakitari Cave. Credit: *Proceedings of the National Academy of Sciences* (2016). DOI: 10.1073/pnas.1607857113

(Phys.org)—A large team of Japanese researchers affiliated with multiple institutions working at a dig site on the south side of the island of Okinawa has found what are believed to be the oldest examples of fishing hooks ever unearthed. In their paper published in *Proceedings of the National Academy of Sciences*, the team describes the fish hooks, other artifacts they found and why they believe their findings are challenging conventional views of maritime adaptations.

Researchers have been excavating at the Sakitari cave site since 2009 and have now found what they believe to be evidence of people finding a way to survive on the resource-limited island—fish hooks that would allow them catch live protein-laden prey. Prior research has suggested that humans have been visiting the island for approximately 50,000 years, but until now, there was little evidence of people staying on the island for long periods of time—at least until the modern era. But this new evidence suggests that people may have been living on the island continuously for the past 23,000 years—back to the time when the fish hooks (which were fashioned out of sea snail shells) were

being used.

In addition to the fish hooks, the researchers also found evidence of other food that had been eaten by the early humans such as frogs, birds, small mammals and even eels—much of it had been charred, suggesting humans had cooked them first. Prior to this latest report, researchers working in the cave had found human skeletal remains, beads crafted by the early people living there and what some believe might have been a grindstone. Interestingly, archaeologists have also found the remains of cooked lobster appearing to be of the size that would have been taken in the fall—the prime time for lobster fishing, as that is when they taste the best.

The fish hooks represent an advancement in maritime technology, one that was necessary for the spread of people across the islands that dot the world's oceans—they suggest that people were able to spread to a much wider geographical zone earlier than has been thought. The team also reports that they have found some other artifacts that might suggest people have been living on Okinawa going back as much as 35,000 years.

**More information:** Masaki Fujita et al. Advanced maritime adaptation in the western Pacific coastal region extends back to 35,000–30,000 years before present, *Proceedings of the National Academy of Sciences* (2016). DOI: [10.1073/pnas.1607857113](https://doi.org/10.1073/pnas.1607857113)

## Abstract

Maritime adaptation was one of the essential factors that enabled modern humans to disperse all over the world. However, geographic distribution of early maritime technology during the Late Pleistocene remains unclear. At this time, the Indonesian Archipelago and eastern New Guinea stand as the sole, well-recognized area for secure

Pleistocene evidence of repeated ocean crossings and advanced fishing technology. The incomplete archeological records also make it difficult to know whether modern humans could sustain their life on a resource-poor, small oceanic island for extended periods with Paleolithic technology. We here report evidence from a limestone cave site on Okinawa Island, Japan, of successive occupation that extends back to 35,000?30,000 y ago. Well-stratified strata at the Sakitari Cave site yielded a rich assemblage of seashell artifacts, including formally shaped tools, beads, and the world's oldest fishhooks. These are accompanied by seasonally exploited food residue. The persistent occupation on this relatively small, geographically isolated island, as well as the appearance of Paleolithic sites on nearby islands by 30,000 y ago, suggest wider distribution of successful maritime adaptations than previously recognized, spanning the lower to midlatitude areas in the western Pacific coastal region.

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APA citation: Ancient fish hooks found on Okinawa suggest earlier maritime migration than thought (2016, September 19) retrieved 18 October 2019 from <https://phys.org/news/2016-09-ancient-fish-okinawa-earlier-maritime.html>

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