

# New giant clam species offers window into human past

August 28 2008

---

Researchers report the discovery of the first new living species of giant clam in two decades, according to a report to be published online on August 28th in *Current Biology*, a Cell Press publication. While fossil evidence reveals that the new species, called *Tridacna costata*, once accounted for more than 80 percent of giant clams in the Red Sea, it now represents less than one percent of giant clams living there.

The researchers said they cannot say for sure which factors contributed to the loss of this giant clam species in favor of others, but the overall decline in giant clam stocks and the striking loss of large specimens is a "smoking gun" for overharvesting by humans many thousands of years ago, said Claudio Richter of the Alfred-Wegener-Institute for Polar and Marine Research in Germany. The new species appears to live only in the shallowest waters, making it particularly vulnerable to overfishing.

" These are all strong indications that *T. costata* may be the earliest example of marine overexploitation," he said.

Modern humans are believed to have coasted out of Africa during the last interglacial, some 125,000 years ago, Richter said. The Red Sea, a saltwater inlet between Africa and Asia, may have acted as a bottleneck, and its overall aridity may have driven the early hunter-gatherers to rely on shallow-water marine resources. Giant clams would have been a prime target, because of their sedentary nature, conspicuousness, and large size, he added.

The research team, including scientists from the Center of Tropical Marine Ecology in Germany and the University of Jordan, discovered the new species while attempting to develop a breeding program for another prized giant clam species. Study coauthor Hilly Roa-Quiaoit of Xavier University in the Philippines, known as the "mother of clams," recognized the new species, which can measure up to a foot long and has a shell with a distinctive zig-zag outline, as a new variety.

Analysis of those apparent differences in morphology confirmed that the species was in fact clearly distinct. To further resolve the relationship of this new variety to the other giant clams, Marc Kochzius at the University of Bremen led the molecular genetic analysis, which confirmed *T. costata* as a new species.

The new giant clam differs from others in the Red Sea in an early and brief reproductive period each spring, coinciding with the seasonal plankton bloom, they report. Underwater surveys carried out in the Gulf of Aqaba and northern Red Sea revealed that the long-overlooked clam must be considered critically endangered. Only six out of a thousand live specimens the researchers observed belonged to the new species.

Early shellfishing evidence in other areas has led to speculation that the dispersal of modern humans out of Africa into the Red Sea and adjacent regions 110,000 to 90,000 years ago was driven largely by competition for marine resources, the researchers said.

"Our discovery that *T. costata* was already on a trajectory of decline prior to this period corroborates this hypothesis, by providing the first circumstantial evidence that humans were not only using but also depleting reef resources, making *T. costata* the likely earliest victim of anthropogenic degradation of coral reefs," they wrote. "Declining marine and terrestrial resources, by human and climatic factors, respectively, may have acted in concert to thwart the precocious but short-lived

colonization of the Near East by anatomically modern but technologically primitive humans at the end of the last interglacial."

Source: Cell Press

Citation: New giant clam species offers window into human past (2008, August 28) retrieved 23 April 2024 from <https://phys.org/news/2008-08-giant-clam-species-window-human.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.