Archaeological dig reveals participants in California's Gold Rush dined on salted Atlantic cod
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It turns out San Francisco has been a destination for lovers of imported delicacies since its earliest Gold Rush days.

According to results published recently in the peer-reviewed Journal of Anthropological Research, an excavation at Thompson's Cove in San Francisco has shown "Atlantic cod were imported during the 1850s, likely as a (largely) deboned, dried and salted product from the East Coast of the United States." The results underscore the importance of global maritime trade in northern California during the Gold Rush.

Co-author Brittany Bingham, doctoral student in anthropology at the University of Kansas, performed genetic analysis on 18 cod bones recovered from Thompson's Cove to determine if they came from cod caught in the deep nearby waters of the Pacific or were shipped in packages by boat from Atlantic fisheries. Her results on five specimens for ancient DNA show Atlantic cod were imported during the debut of the Gold Rush.

Bingham said bones tend to be better preserved and more suitable for analysis than other materials left behind from the rapid surge in San Francisco's population. (In the first year of the Gold Rush, between 1848–49, the area's 800 residents quickly swelled to more than 20,000.)

"Bones preserve better than other things that don't last in the archaeological record as well," she said. "You won't get a quality DNA sample from every bone—some are burned, and soil and other factors can affect preservation, so we typically check for DNA and determine what we're looking at. But often people move bones elsewhere and maybe they're thrown in a different place than the rest of the bones, so you don't have the whole specimen to look at. That's where people like me come into play, and we'll take the one tiny piece of bone that might have been found and figure out what it actually came from."

The results of Bingham's analysis were among the first archaeological results to confirm findings from historical newspapers and invoices: The early history of San Francisco included the importation of a wide range of fish and seafood to support the population boom.

The project came about when the Musto Building built in 1907 at Thompson's Cove—where the city was first settled—undertook a mandatory retrofitting to be more resilient to earthquakes, triggering a California compliance law requiring archaeological work in conjunction with construction at the site. Today, the building is home to a private social club.
Caudal vertebra from an Atlantic cod at Thompson's Cove analyzed in the study versus (b) Pacific cod caudal vertebra from a contemporary comparative collection. Credit: Courtesy of Gabriel M. Sanchez, Department of Anthropology, Michigan State University

Kale Bruner, who earned her doctorate in anthropology at KU, worked on the Thompson's Cove site as construction took place. Today, Bruner serves as a research associate at the Museum of the Aleutians.

"Compliance work is challenging in a lot of ways because you don't really get a lot of control over the excavations, and this case was kind of an extreme example of that—the fieldwork conditions were overwhelming—and I was the only archaeologist on site," Bruner said. "They were fortunately only excavating dirt in one location at a time, so I only had one piece of machinery to be watching, but we were hitting archaeologically significant material constantly. It was two years essentially of monitoring that kind of activity and documenting as rapidly as possible everything that was being uncovered."

Aside from evidence of Atlantic cod, the authors reported about 8,000 total specimens or fragments of animal bone, and a total number of artifacts collected that numbered nearly 70,000. The work will yield more academic papers on the historical significance of the site.

Lead author Cyler Conrad, adjunct assistant professor of anthropology at the University of New Mexico and archaeologist with Los Alamos National Laboratory, has published other findings from work at Thompson's Cove, including evidence of a California hide and tallow trade, eating of wild game, hunting of ducks and geese, and even importation of Galapagos tortoise.

He described the Gold Rush era as exciting and chaotic, a time that in some ways mirrored the supply chain problems plaguing the world in the COVID-19 era.

"During the Gold Rush, it took many months for vessels to arrive in San Francisco, so often when you needed things is not when they would arrive, and when things would arrive, they were often not needed anymore," Conrad said. "You find these descriptions of San Francisco as this kind of muddy mess, a kind of a tent city where there were shacks built upon shacks all the way up until the shoreline, just stacked with crates and boxes. Even at Thompson's Cove, I think Kale excavated several essentially intact crates of frying pans and shovel heads. You can imagine shiploads of shovels might arrive, but maybe everyone had a shovel already or maybe it was winter, and no one was in the gold fields and you have all this material that accumulates right along the shoreline—but that was convenient for our work."

Conrad said the work to determine the Atlantic origins of cod bones found at the site was a significant contribution to understanding maritime trade of the era, when Atlantic cod was either shipped by boat all the way around Cape Horn—or shipped to Panama, then hauled across the isthmus, before being shipped up to the Northern California gold fields.

"We have this really fascinating aggregation of material, and it's remarkable we only found 18 bones we can identify to the genus of cod from the Atlantic," he said. 'Brittany's DNA work was critical for this because it's difficult to distinguish between bones of Atlantic versus Pacific cods—their bone
morphology is virtually the same. We've been able to tie the DNA from Brittany's work with some slight differences in the very far tail vertebrae. If you think how cod were prepped and salted, they removed almost all bones, except for the very last few bones. Perhaps this was rapidly prepared and exported cod from the East Coast, because of this rush to the gold fields and demand for food. Perhaps they were just kind of shipping out whatever they could. There are some interesting details in the cod bones, and we would never have been able to answer these questions without DNA—and it really supports this identification that, yes, these are Atlantic cod—and that opens up a whole new window into this human experience."


Provided by University of Kansas

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