

Giant extinct salmon fought with spike teeth during upriver spawning events

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An illustration by Jacob Biewer Credit: Society of Vertebrate Paleontology

The ancient coastal waters of the Pacific, roughly 11 to 5 million years ago, were home to a bizarre and fascinating species of giant salmon with large spike-like teeth. This spike-toothed salmon reached sizes of 3 to 9 feet in length (1-3 meters), much larger than the typical salmon found in the Pacific today. These hefty spike-toothed fish would have made for a difficult catch at nearly 400 pounds (177 kg). The spike-like teeth of the salmon could be over an inch long (3 cm), much longer than modern Pacific salmon teeth, even after compensating for their larger size. Researchers from California State University in Turlock, California have been studying the strange teeth of these unusual fish and discovered

some tantalizing clues into their past behavior and life history.

Much like modern Pacific salmon, the giant salmon was likely primarily a filter-feeder, so the spike teeth were probably not part of catching prey. Modern salmon go through physical changes in their body, especially their skull, before migrating upriver to spawn where males will fight to defend the eggs they have fertilized. To see if these teeth played an important role in breeding of the giant fossil salmon, the team of researchers, led by Dr. Julia Sankey, compared 51 different fossils from ancient deposits of both freshwater and saltwater environments. The teeth of these salmon found in past freshwater environments consistently had longer, more recurved teeth with much larger bases, as well as showed clear signs of wear. Fossil salmon teeth from saltwater deposits were much smaller and less worn. This indicates that they changed prior to migration upriver to spawn.

These results help show that these impressive spike-like teeth of the giant salmon are indeed used as part of the breeding process in these extinct fish. Researchers think it is likely these hefty bruisers were using their spike-like teeth for fighting and display against each other during the spawning season, up in the ancient rivers of California. "These giant, spike-toothed salmon were amazing fish. You can picture them getting scooped out of the Proto-Tuolumne River [near Modesto, California] by large bears 5 million years ago." said Dr. Sankey "Scientifically, our research on the giant salmon is filling in a gap in our knowledge about how these salmon lived, and specifically, if they developmentally changed prior to migration upriver like modern salmon do today. This research is also helping paint the picture of this area 5 million years ago for the general public and my college students, and it excites them to think of this giant [salmon](#) swimming up our local rivers 5 million years ago!". Dr. Sankey and colleagues presented their research at this year's meeting of the Society of Vertebrate Paleontology in Salt Lake City, Utah.



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Provided by Society of Vertebrate Paleontology

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