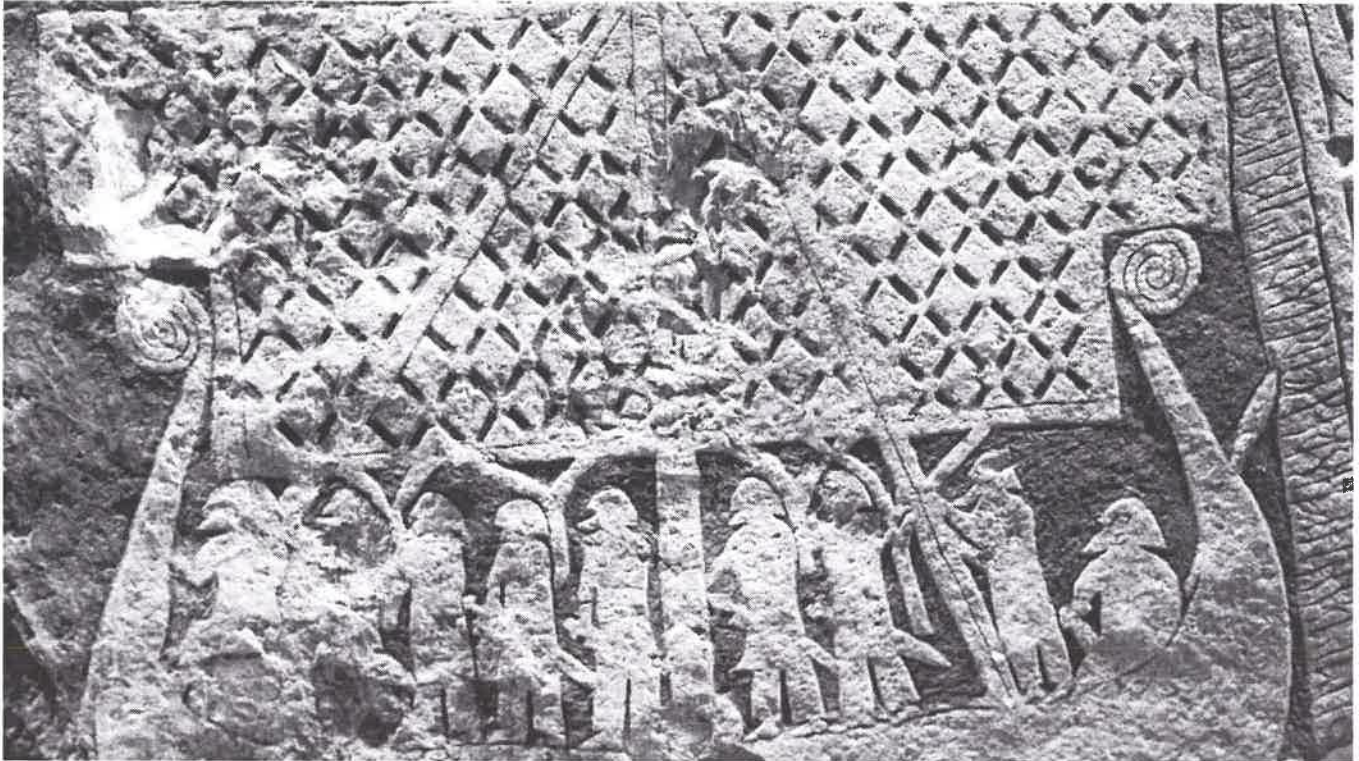


Just the opposite for the seagoing Vikings: They battled "land rebound"

By Newport News Daily Press, adapted by Newsela staff on 09.19.18

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A rune stone from Gotland Island, considered a relic of the Viking civilization. Photo By DEA/G. DAGLI ORTI/De Agostini/Getty Images

NEWPORT NEWS, Virginia — With their scruffy beards, horned helmets, and longships, Vikings are often portrayed in movies or TV as ruthless conquerors. It could seem like they traveled to other villages to take them over just for fun.

However, a driving force behind those voyages wasn't just the desire for treasure or power or exploration. In some cases, it may have been climate change.

An international research team is looking into the environmental challenges that the Vikings faced. Specifically, a change in sea level appears to have pushed some Vikings living along Norway's northern coastal islands to relocate to another part of the coast.

Nick Balascio is a paleoclimatologist, meaning he studies historical climate patterns, at the College of William and Mary in Virginia. His team's research, he said, is looking at "how environmental changes may have influenced their society" during this important period.

The period, known as the Viking Age, roughly 800 A.D. to 1050, overlaps the tail end of the Iron Age. During the Iron Age, humans began to make tools out of iron and steel.

Balascio is part of a team of archaeologists, climate scientists and students studying what remains of some of the Vikings' coastal settlements. They are extracting core samples from the bottoms of glacial lakes. Their work is an extension of Balascio's previous research to understand past natural climate shifts.

Receding Shoreline Forced Vikings To Relocate

Today, climate change consists of ever-warming average global temperatures, rising sea levels, or sinking regional land masses. However, the Vikings were faced with quite the opposite.

Vikings lived on land masses much closer to the ancient glaciers. In turn, ice that had melted over previous thousands of years meant the land, freed from all that weight, was rising. This phenomenon, also known as "land rebound," meant the shoreline that the seafarers relied on for fishing, trade, and transportation was receding.

Sea level change began to affect harbor access, Balascio said. So Viking chief leaders needed to figure out how to adapt.

The research team is still working through data collected so far, he said. Still, there's some evidence that the Vikings did move toward the sea as it receded.

In these cases, Vikings were "almost completely abandoning" certain harbors, Balascio said, and moved to significantly different parts of the region. His group is trying to look in detail at the timing of the changes. This way, "we can see any lag between the changing of the locations or what the impact could have been on the people," he says.

At Least A Regional Impact

It's unclear if environmental changes were the primary driver for resettlement. Researchers are fairly certain those changes did have a regional impact. However, they caution against saying there's a direct connection.

At the end of the Iron Age, Vikings living in the rugged Lofoten group of islands, located above the Arctic Circle, were already facing tough environmental challenges, said research partner Stephen Wickler. He works at the Department of Cultural Sciences at the Tromso University Museum in Norway.

There were poor conditions for farming grains and feed for livestock, Wickler explained in an email. Unstable weather patterns, he said, were made worse by the offshore location and extreme conditions at sea.

As such, he said, it's extremely difficult to pin down a cause attributable to past climate change.

Still, climate change can be one of many factors contributing to changes in that late Iron Age society, he said.

Harbors And Fishing Boats Were Abandoned

Shrinking coastlines stranded valuable harbors and fishing boats. Bays were left isolated, and drainage from rivers formed "freshwater lenses," or puddles of fresh water atop saltwater, on the surfaces. This allowed the surface water to freeze in winter, said research partner William D'Andrea from the Lamont-Doherty Earth Observatory of Columbia University.

The island fishermen and farmers were lucky, D'Andrea said. They likely had multiple ways of building wealth "that insulated them from feeling the full impacts" of the extreme climate changes.

The research team collected its core samples in May 2017 and 2018. To do this, they anchored small rafts in the deepest parts of glacial lakes, typically 60 feet to 150 feet deep.

They used rope and wire to lower thin plastic piping to the lake bottom. Then, they lowered a 30-pound weight to hammer the piping into the bottom, collecting 13 to 16 feet of core sediment, a soil-like material, at a time.

When they analyze that sediment, Balascio said, they'll look for evidence of any and all human activity that might have washed in. This may include signs of deforestation, farming, or cooking pits.

More Evidence Needed Before Making Predictions

Balascio said in the next year, the team hopes to have more detailed evidence of human presence before, during, and after the Iron and Viking ages.

D'Andrea cautioned that it's too soon to make predictions about how the island Vikings responded to a changing climate.

He said it's important to remember, though, that in response to any climate changes or problems, the Vikings would have been able to move into new territory that was often unpopulated. "This strategy would not work on our planet today," he said.

"I'll also say that the climate changes that the Iron Age Vikings dealt with were modest" compared to what modern society is up against, he said.

Balascio agreed that we can't really compare the Lofoten Viking experience to today. Human activity is changing the climate at an accelerating pace, he explained.

Still, the research does offer a better perspective on how people of the past responded to climate and environmental changes.

In general, Balascio said, he's "optimistic" that humans can be resilient in the face of a changing climate.