

# Study finds rising summer ocean temperatures equals fewer plankton for fish to feed on

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Summer temperatures in the waters of the North Atlantic have been increasing since 1353, reducing the abundance of plankton – a key source of food for cod.

A study by scientists at the University of Glasgow has shown that North Atlantic summer water temperatures have risen by around 2.7 degrees Celsius since the Little Ice Age, compared to 1.4 degrees in winter.

The increased summer warming has resulted in a reduction of the quality and abundance of zooplankton – a primary source of food for several marine organisms, including cod.

Dr. Nick Kamenos said: “Since the Little Ice Age, from around 1400 to 1700, summer marine temperatures in the North East Atlantic inshore shallow waters have increased nearly twice as much as those in winter.

“This has implications for climate projections and affects abundance of zooplankton with potentially significant effects on marine food security.

“Since 1958 increasing [summer temperatures](#) have reduced the quantity of zooplanktonic [food](#) available for larval and juvenile cod. This may have detrimental effects on adult cod populations in the North Atlantic.”

The scientists used existing climate models as well as data gathered from

fossilised algae, which contain rings – much like the rings of trees – that reveal the [temperature](#) in each year of growth.

Dr. Kamenos said: “This data can be fed into climate models to help us understand how seasons are responding differently to rising temperatures and it can also help us manage fisheries.

“This study looked at just one relatively small part of the Atlantic Ocean, using algae collected from the West Coast of Scotland, so I would like to see what the effects are on a wider scale.”

**More information:** The study, ‘North Atlantic summers have warmed more than winters since 1353, and the response of marine zooplankton’, which was funded by the Natural Environment Research Council and Royal Society of Edinburgh/Scottish Government, is published in the latest edition of the *Proceedings of the National Academy of Sciences*.

Provided by University of Glasgow

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