

Study suggests abrupt ocean warming could lead to mass fish deaths

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A dead lionfish floating near the surface above the coral reef of Eilat, Gulf of Aqaba, in summer 2017. Credit: Arik Diamant

A team of researchers affiliated with several institutions in Israel and one in Greece has found evidence that suggests sudden ocean warming can lead to mass fish deaths. In their paper published in *Proceedings of the National Academy of Sciences*, the group describes their study of mass fish death events and what they learned about them.

As Earth continues to grow warmer due to emissions of greenhouse gasses, scientists are trying to understand what it could mean for the future of the planet and its inhabitants. In this new effort, the researchers looked at the impact of abrupt ocean warming events on [fish populations](#). These events are predicted to occur more often as the planet warms.

Prior work has suggested that warmer oceans will exert stress on sea creatures. Warmer and more [acidic water](#) is already killing [coral reefs](#), leaving the [fish](#) and other creatures that call them home unable to survive. But what happens when the temperature of the water rises quickly? To find out, the researchers studied a mass fish die-off that occurred in 2017 along the coast of Eilat, Israel. Due to its novelty, citizen-scientists were urged to collect the dead fish and to bring them to a testing station. Subsequent analysis showed that they died due to a [bacterial infection](#)—they were all overcome by *Streptococcus iniae*. The researchers at the time noted that such bacteria are always present in the water, and wondered why the fish were suddenly overcome. In this new effort, the researchers found that just prior to the die-off, the water in the area where they had died had experienced an abrupt warming event—temperatures had risen 4.2C° in just 2.5 days in July of that year; it happened again in August, when temperatures rose by 3.4C° in just 2.5 days.

The researchers were not able to prove that the sudden warming led to the fish dying of bacterial infections, but their theory was bolstered when they took a look at two other massive fish die-offs: in western Australia in 2011 and Kuwait Bay in 2001. In both instances, the fish had died from bacterial infections just after sudden [warming](#) events.

More information: Amatzia Genin et al. Rapid onsets of warming events trigger mass mortality of coral reef fish, *Proceedings of the National Academy of Sciences* (2020). [DOI: 10.1073/pnas.2009748117](https://doi.org/10.1073/pnas.2009748117)

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