‘Glow-in-the-dark algae may be sign of global warming’

Plankton bioluminescence lights up waves at Juhu jetty. | Photo Credit: Special Arrangement

The phenomenon of Mumbai’s beaches glowing in the dark maybe a consequence of global warming and not industrial pollution, according to a year-long investigation by Indian and American scientists.

The *Noctiluca* algae, commonly known as sea tinkle, is a parasite and occurs in patches or ‘blooms’ in the Northern Arabian Sea. They glow at night due bioluminescence, and have earned them the nickname ‘sea sparkle’.

However, these patches are a sign of decline because they compete with fish for food and choke their supply. *Noctiluca* devours one of the most important planktonic organisms at the base of the fish-food chain, namely diatoms, and also excretes large amounts of ammonia, which is linked with massive fish mortalities.

Earlier, the increase in algal patches was linked to coastal pollution from major Indian cities along west coast. However, say researchers from the Indian National Centre for Ocean Information Services (INCOIS)—a Ministry of Earth Sciences (MoES) body—and the US’ National Oceanic and Atmospheric Administration (NOAA) – “global warming conditions” may be instead be responsible.

A warming ocean means greater temperature differences among layers of the sea water and this slows the upward transport of nutrients like silicate from the ocean bottom, lowering its concentration at the surface. Diatoms growing in surface water need both sunlight and silicate to build their glass skeletons and thus, will fail to thrive when silicate becomes less available. On the other hand, *Noctiluca* remains unaffected by these changes and additionally will prey on the remaining diatoms. “Remarkably, the waters in the study area were observed to have sufficient oxygen clearly opposing any linkage between low oxygen and Noctiluca growth. Intensifying global-warming conditions, thus may be expected to disrupt the fish-food chain and cause a decline of fisheries in the region,” the researchers said in a statement. The findings have been published in the peer-reviewed journal, *Harmful Algae,* said SC Shenoi, Director, INCOIS.

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