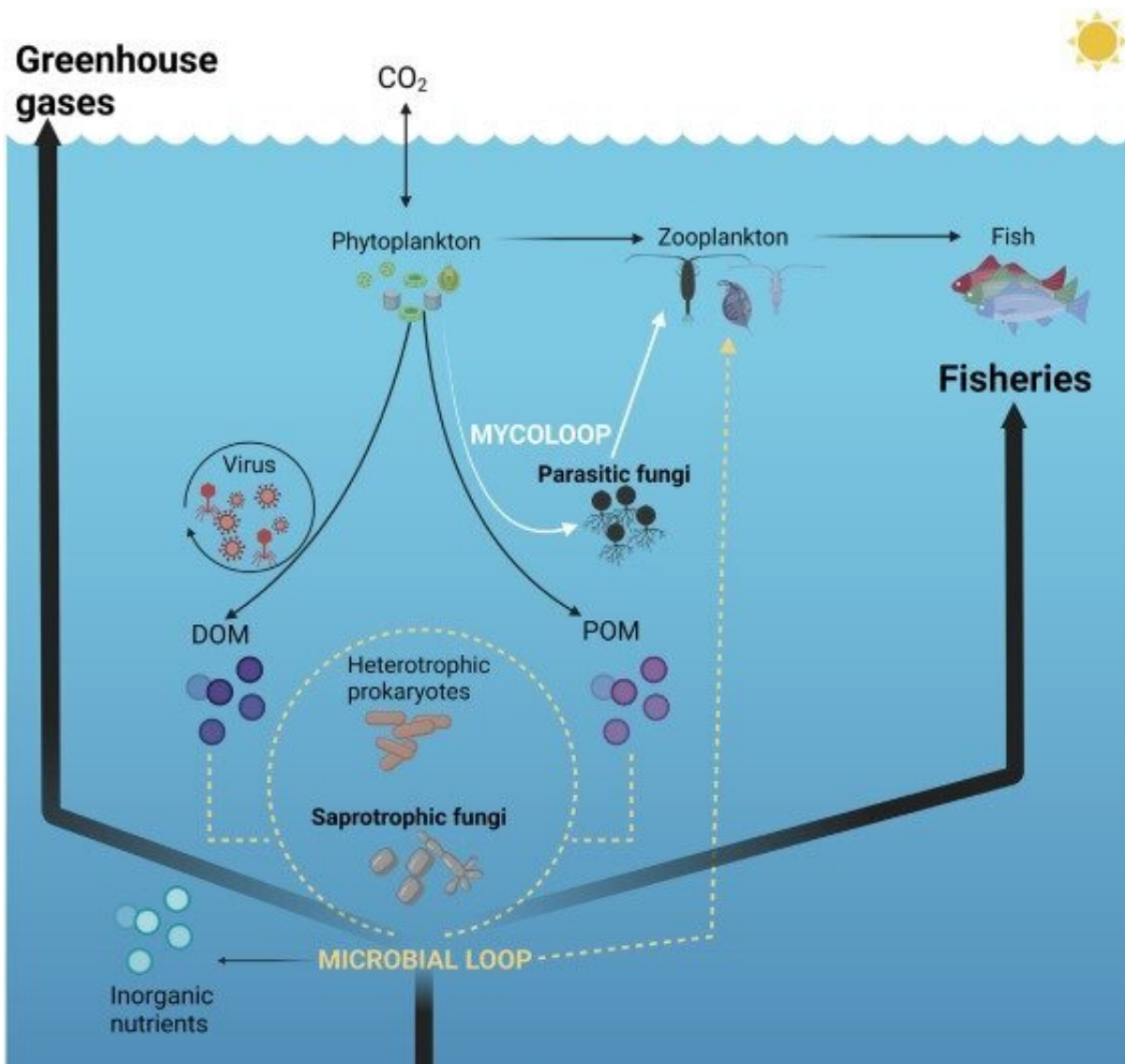


The rise of pelagic fungi and their crucial role in oceanic ecosystems

June 5 2023



Schematic, simplified representation of the oceanic trophic chain and the associated carbon fluxes. This new representation includes the traditionally neglected pelagic fungi, both parasitic and saprotrophic, highlighting the central

role played by them, parasitic fungi in the mycoloop, and saprotrophic fungi as active contributors to the microbial loop. As depicted by this diagram, the activity of heterotrophic microbes, including pelagic fungi, has far-reaching global implications for fisheries (i.e., the amount of carbon that will ultimately flow to higher trophic levels) and climate change (i.e., the amount of carbon that will be sequestered in the ocean or respired back to CO₂ and the release of other greenhouse gases; e.g., N₂O). Figure created in BioRender. Credit: *Trends in Ecology & Evolution* (2023). DOI: 10.1016/j.tree.2023.05.002

Fungi play a vital and previously neglected role in the complex tapestry of marine ecosystems, a study by Eva Breyer and Federico Baltar of the University of Vienna reveals. The results have now been published in the journal *Trends in Ecology & Evolution*.

Traditionally overlooked and underestimated, recent findings have put the spotlight on the profound importance of pelagic [fungi](#) (mycoplankton) as valuable members of oceanic pelagic [ecosystems](#). Thanks to recent technological advances, the [scientific community](#) can now harness cutting-edge tools to uncover, characterize, and understand the abundance, diversity, and functional roles played by pelagic fungal taxa and communities within the oceanic realm.

Through a comprehensive review of the current knowledge on mycoplankton ecology, Breyer and Baltar shed light on the ubiquity of pelagic fungi and emphasize their crucial role in the ecology of the oceans. "Pelagic fungi, previously overlooked, are found extensively throughout the [water column](#) in every ocean basin. And not only that, these fungi play an active role in the degradation of organic matter and the cycling of nutrients, highlighting their significance in the functioning of marine ecosystems," says Baltar.

The integration of pelagic fungi into our scientific framework not only

enhances our knowledge of marine ecosystems but also bridges the realms of terrestrial and freshwater fungal ecology, expanding the global relevance of fungi in diverse natural environments. Baltar explains, "Incorporating the role of mycoplankton in ecological models will enhance our comprehension of organic matter cycling and promote better management and conservation practices for our oceans."

More information: Eva Breyer et al, The largely neglected ecological role of oceanic pelagic fungi, *Trends in Ecology & Evolution* (2023).
[DOI: 10.1016/j.tree.2023.05.002](https://doi.org/10.1016/j.tree.2023.05.002)

Provided by University of Vienna

Citation: The rise of pelagic fungi and their crucial role in oceanic ecosystems (2023, June 5) retrieved 27 April 2024 from
<https://phys.org/news/2023-06-pelagic-fungi-crucial-role-oceanic.html>

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