

Seagrass restoration threatened by fungi

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Seagrass (*Z. marina*) on the North Sea island of Sylt. Credit: Laura Govers

Dutch biologists have discovered that seagrass seed is killed by waterborne fungi that are related to the well-known potato blight. These fungi, which have not previously been found in seawater, hinder seed

germination and thus prevent the restoration of seagrass. The biologists, including Laura Govers of Radboud University, published their results on August 24 in *Proceedings of the Royal Society B*.

The seawater fungi that are to blame (*Phytophthora gemini* and *Halo* *Phytophthora* sp. *Zostera*) have been identified as members of the large *Phytophthora* family, which also includes the fungus that causes [potato blight](#). Fungi in this family cause severe damage in agriculture and horticulture, affecting potatoes, grapes and oak trees in California and eucalyptus trees in Australia. The findings in the above article came to light during seagrass [restoration](#) trials in the Wadden Sea and the Grevelingen area, but the [fungi](#) turned out to be present at many other locations in Europe and America. The widespread presence of these pathogens therefore threatens the global recovery of seagrass. This problem deserves attention because these coastal ecosystems are just as important as coral reefs: they provide breeding grounds for various species, increase biodiversity, and contribute to coastal protection by damping the force of waves.

Nearly all seagrass seed is infected

This investigation was prompted by disappointing germination of [sea](#) grass seed that was collected for the restoration project on the North Sea island of Sylt. Nearly all this seed was found to be infected with *Phytophthora*. Lead researcher Laura Govers, who works at Radboud University and the University of Groningen, tested the germination of the infected seed. "This proved to be six times less likely to germinate than non-infected seed. Only three to four percent of all infected seeds germinated."

Copper treatment

In recent decades, many fields of seagrass have deteriorated worldwide. In the Netherlands, the vast seagrass beds that were originally present in the Wadden Sea disappeared after 1930 and never recovered. These fields were important breeding grounds for fish such as herring, and they contributed to the high biodiversity of the area. They also made the water clearer and contributed to coastal protection by damping the force of the waves. That's why biologists are investigating whether seagrass restoration in the Dutch Wadden Sea is possible. One way to improve the chances for seagrass restoration is by treating the seeds during storage with a copper solution. This method has been used in farming since the 19th century to combat *Phytophthora* infection and appears to be promising for seagrass [seed](#).

More information: Laura L. Govers et al. *Marinespecies can hamper conservation and restoration of vegetated coastal ecosystems*, *Proceedings of the Royal Society B: Biological Sciences* (2016). [DOI: 10.1098/rspb.2016.0812](https://doi.org/10.1098/rspb.2016.0812)

Provided by Radboud University

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