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How offshore wind farms have a positive impact on the fish world: New insights into the fish community in wind farms in Germany

At the foot of the offshore wind farms in the German Bight, newly composed fish communities are forming. These differ depending on the location and wind farm. This is shown by current studies by the Thünen Institute of Sea Fisheries in a wind farm in the southern German Bight.

Bremerhaven (July 15, 2025). A cooperation between the Thünen Institute of Sea Fisheries in Bremerhaven and the offshore wind farm operator Northland Power provides insights into the fish communities of a wind farm in the southern German Bight for the first time. During a research trip to the Nordsee One wind farm north of Norderney, scientists investigated which fish species are present at the wind turbines and how the composition of the existing species differs from other wind power sites.

For their investigations, the researchers used a combination of fishing and underwater cameras. "This allowed us to record a particularly wide range of fish species that reside in and around the foundations of the wind turbine," explains Vanessa Stelzenmüller from the Thünen Institute of Sea Fisheries, who led the study. Many fish species find a new home between the components and stone fills. "But we cannot take samples there with the usual fishing methods such as trawling," says Stelzenmüller.

The investigations at the Nordsee One wind farm are not the first. Earlier studies by the Thünen Institute near Heligoland had shown that different fish species settle depending on the construction method and foundation of the wind turbines. The new studies now show that the composition of the fish community does not only depend on the type of foundation. In the southern German Bight, they differ significantly from those in Heligoland. In the wind farms there, the researchers caught mainly cod (*Gadus morhua*), mackerel (*Scomber scombrus*) and wood mackerel (*Trachurus trachurus*) and detected pollack (*Pollachius pollachius*), for example, through underwater images. In the southern wind farm, on the other hand, French cod (*Trisopterus luscus*) and dwarf cod (*Trisopterus minutus*) were the main targets, along with mackerel and wood mackerel.

Another interesting finding: The researchers encountered the striped blenny (*Parablennius gattorugine*), a species typically found on rocky seabeds. In addition to the already known occurrence of crabs (*Cancer pagurus*), velvet crabs (*Portunus puber*) were detected within the wind farm. This substantiates the thesis that the artificially created structures and especially the scour protection, which was installed from stones around the foundation foundations, create a reef effect.

Why the fish communities in the southern and northern German Bight differ has not yet been conclusively clarified. One assumption is that, in addition to different water mass characteristics, even small differences in the diameter of the stones used for scour protection play a role.

Managing Director Till Frohloff of the Nordsee One wind farm emphasizes: "It was very important to us to actively support the scientific investigations in the wind farm. This is the only way we can gain reliable insights into how our plants influence the marine ecosystem. The results of this research are of great value to us. We will use them in a targeted manner to ensure that our impact on the existing ecosystem remains as minimal and sustainable as possible in the future after dismantling has been completed."

The study shows that offshore wind farms not only help to secure the energy supply, but also influence the marine ecosystem with their structures. From the perspective of both scientists and operators, these effects should be taken into account in the context of land development planning with regard to land planning, construction, operational extensions and dismantling of offshore wind farms.

Further information:

[Project page](#)

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