

Food source preference of five fish species related to an offshore wind farm at the Belgian part of the North Sea

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Abstract

The demand for renewable energy has led to an increased establishment of offshore wind farms, with the piles and scouring protections acting as artificial reefs enhancing the local biodiversity. This undoubtedly causes changes in the trophic interactions among species. This study investigates the trophic niche of five fish species inhabiting the scour protection habitat of a wind turbine in the Belgian part of the North Sea. Individuals of pouting *Trisopterus luscus* (N=17), cod *Gadus morhua* (N=16), mackerel *Scomber scombrus* (N=12), horse-mackerel *Trachurus trachurus* (N=12) and sculpin *Myoxocephalus scorpioides* (N=5) were collected. Stomachs were immediately removed for the stomach content analysis (SCA) and muscles from the dorsal fin were collected for the carbon and nitrogen stable isotope analysis (SIA). Simultaneously, potential food sources for the fish (fouling fauna, zooplankton and particulate organic matter from the water column) were collected from the area, analysed for SIA and clustered according to their isotopic signatures. Pouting, cod and horse-mackerel consumed a variety of different sources with high dominance (88%, 77% and 61%, respectively) for the amphipod *Jassa herdmani*. The other two species had mainly empty stomachs. The SIA suggests that the mackerel and horse-mackerel rely mainly on lower-in-carbon primary sources suggesting trophic niche segregation with the other three species. Stable isotope mixing models using the SIA data showed that all fish species exploit every available food source, indicating omnivory and a generalist feeding ~~behaviour~~behavior.

Keywords:

trophic niche, artificial reef, trophic generalist, omnivory

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