

P050 Molecular evidence for the presence of ammonia-oxidizing archaea (AOA) in NW Black Sea coast

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Ammonia oxidation, the first step in nitrification, is a key process in the marine N cycle that results in the formation of nitrate through activity of microbial (both bacterial and archaeal) ammonia oxidizers.

We investigated the diversity (richness and community composition) of planktonic ammonia-oxidizing archaea (AOA) in the NW Black Sea, a shallow semi-enclosed area receiving substantial river nitrogen inputs.

Using catalyzed reporter deposition fluorescence in situ hybridization (CARD-FISH) and PCR primers designed to specifically target ammonia monooxygenase (*amoA*) gene, we find AOA to be present at three sampling sites along a transect from the Danube river outflow into the NW Black sea coast. Also we find a significant relation between AOA and NH_4^+ and NO_2^- .

These findings represent the first detailed examination of archaeal diversity in the NW Black Sea coast and demonstrate that diverse archaeal communities capable of ammonia oxidation are present within NW Black Sea coast where they may be actively involved in nitrification.