# Relative abundance of *Nitrotoga* spp. in a biofilter of a cold-freshwater aquaculture plant appears to be stimulated by slightly acidic pH

Jennifer Hüpeden[a], Simone Wegen[a], Sandra Off[a]*, Sebastian Lücker[b,c], Yvonne Bedarf[a], Holger Daims[c], Carsten Kühn[d] and Eva Spieck[a#]

[a]Biocenter Klein Flottbek, Microbiology & Biotechnology, University of Hamburg, Hamburg, Germany

[b]Department of Microbiology, Faculty of Science, Radboud University, Nijmegen, the Netherlands

[c]Department of Microbiology and Ecosystem Science, Division of Microbial Ecology, University of Vienna, Vienna, Austria

[d]State Research Centre of Agriculture and Fisheries Mecklenburg-Vorpommern, Institute of Fisheries, Rostock, Germany

[#]Address correspondence to Eva Spieck, eva.spieck@uni-hamburg.de

*Present address: Hamburg University of Applied Sciences, Department of Life Sciences, Hamburg, Germany

**Running title:** Abundance of *Nitrotoga* in aquaculture biofilters

**Supplemental Material**

Fig. S1: Well covered carrier element type BCN009 of BF2 sampled in March 2011 after an operating time of four months, illustrating the dense microbial biofilm on the inside.

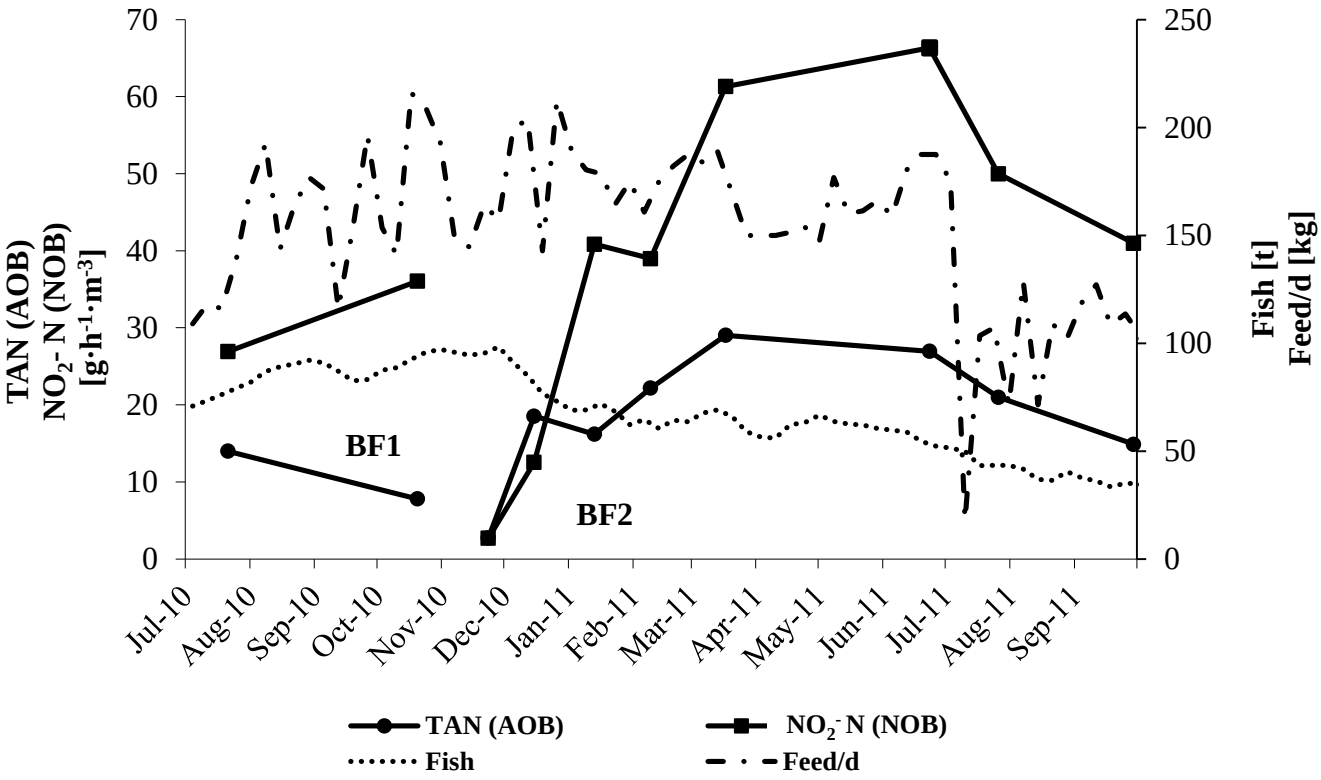


Fig. S2: Temporal development of potential nitrification rates in BF1 (left) and BF2 (right). Turnover rates refer to the conversion of ammonia via AOB (TAN) and nitrite via NOB ($NO_2$-N) within 8 hours. The amount of fish and the daily addition of feed inside the respective aquaculture ponds of BF1 and BF2 were evaluated as weekly average stocking and feeding rates.

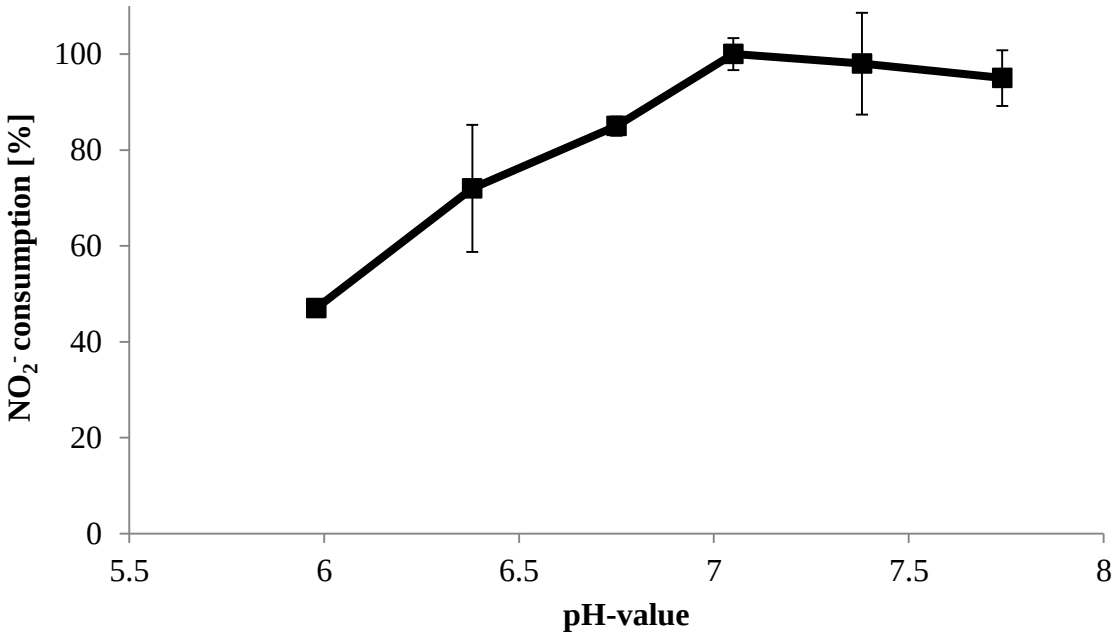


Fig. S3: Short-term nitrite consumption of biofilm inhabiting NOB of BF2 in dependence on the pH, incubated at 17°C.