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Effect of Fish Farming Effluents on the Nitrogen Isotope Ratios of Aplysina aerophoba in the Murter Sea (Central Adriatic, Croatia)

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Nitrogen stable isotope analyses of marine sponge Aplysina aerophoba were used to investigate influential area of fish-farming activities in the coastal ecosystem of the Vrgada Island in the Murter Sea, Central Adriatic. The results show a significant 15N enrichment (up to 7 per mil) of Aplysina aerophoba tissue between cage sites and unaffected offshore reference sites of Kornati Islands. Heavy nitrogen enrichment in marine sponges, which is supposed to be due to the consumption of 15N-enriched farm-derived nitrogen waste, could be detected not only in Aplysina aerophoba, but also in other benthic organisms, as well as in the seagrass Posedonia oceanica in a distance up to 1000 m from the cages. The dispersion pattern of elevated 15N values is strongly influenced by the main water currents in this part of the Murter Sea.