



Pelagic respiration and primary production in and adjacent to the Danube river plume, Black Sea, in May 2016

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High nutrient loads during the 1970's and 1980's have caused massive eutrophication problems including hypoxia and anoxia on the continental shelf adjacent to the Danube river but during recent decades, eutrophication has decreased. In May 2016 we investigated pelagic primary production (PE curves, O₂ method) and respiration (dark incubations, O₂ method) in the Danube river plume and adjacent continental margin. The observations were part of a larger project including sediment respiration and aiming at capturing the response of the coastal ecosystem to the decreased eutrophication. Nutrient concentrations were generally very low with phosphate as the ultimate limiting element. Respiration (up to 0.8 μM O₂/day) and maximum production rates (up to 6 μM O₂/h) were highest in the river plume and decreased towards the open Black Sea to respiration rates below 0.04 μM O₂/day and production rates below 0.2 μM O₂/h. We will present an integrated water column O₂ budget and discuss the relative importance of water column and sediment respiration rates.