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PELAGIC METABOLISM OF THE SCHELDT ESTUARY MEASURED BY THE OXYGEN METHOD

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Pelagic primary production, respiration and nitrification have been measured in the turbid Scheldt estuary by the oxygen Winkler method during a 10-day cruise in November 2002 (EUROTROPH project). Four stations along the estuary and one in the plume (North Sea) were investigated, corresponding to a salinity range of 0.5-34. Water was sampled at sunrise and incubated until sunset in 60 ml glass bottles stored in a 5 compartment incubator kept at in situ temperature by flowing water. Irradiance was controlled in each compartment by filters having a shading capacity ranging from 0 to 100Net community production was always negative in the estuary with values ranging from -325 to -12 mmol O2 m-2 d-1 and the lowest values were found in the inner part. The station in the plume was slightly autotrophic with a value of 15 mmol O2 m-2 d-1. The highest integrated respiration and nitrification rates were found at Antwerpen (salinity 3), 325 and 273 mmol O2 m-2 d-1 respectively. Moreover, no integrated gross primary production was detected at this station. Nitrification contributes 30 to 70Net community production rates measured during this campaign are among the lowest reported in the literature and confirm the strong heterotrophic status of the Scheldt estuary during this period.