

Phosphorus release from the sediment in the riparian community and its effect on the high primary productivity of the estuary ecosystem

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In order to determine the factors to sustain the high primary productivity of an estuary community, we analyzed the dynamics of nitrogen and phosphorus in the estuary of the Chikugogawa river, south-western Japan. The ratio of Total-P / Total-N of river water showed the maximum value of 0.5 (molar ratio) at the point from ca. 13 km from the river mouth. Primary productivity of the riparian community of *Phragmites australis* showed also maximum at the same point. Phosphorus accumulation to the sediment from the upstream of the river and the release from the sediment after mineralization under reduced condition could be the main source of phosphorus to the community, and this could sustain the high productivity of the estuary wetland community. We discuss the function of riparian communities in nutrient dynamics of the estuary community as well as salt tolerance of *P. australis* and *Scirpus planiculmis*.