



## **Contribution of Outer-shelf Deep Water to the nutrient inventories in the euphotic zone of Changjiang River plume during summer**

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Nutrient supply to the euphotic zone of high productivity area in the Changjiang Estuary, East China Sea is crucial in understanding algal bloom and hypoxia in this area. Previous studies suggested that Changjiang Diluted Water (CDW) and Outer-shelf Deep Water (ODW) are two main sources for nutrient supply while quantitative estimation of each nutrient species to the euphotic zone remains unknown. Based on a field survey and end-member mixing model, the nutrient inventories of ODW, and its contribution to the model-predicted nutrient inventory in the euphotic zone of Changjiang River plume-impacted area were assessed. Upwelling of ODW was identified, indicating that it significantly contributed to nutrient inventories in the upper layer. The nutrient inventory estimation suggested that the area-integrated nutrient inventories of ODW were higher than that of CDW in the euphotic zone of plume-impacted area. As inferred from the mixing model, the contributions of ODW to DIN and silicate inventories in the euphotic zone were 18.2% and 28.1%, respectively, much lower than that of CDW. However, 37.6% and 39.1% of the phosphate inventory were from ODW and CDW, respectively, indicating that ODW phosphate contribution was comparable with that of CDW in the euphotic zone, while DIN and silicate brought by ODW were less