

## Nitrogen cycle at water-column and sediment in the barrier reef lagoon of Palau Island

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Distributions and fluxes of dissolved inorganic nitrogen (DIN) species in water column and bottom sediment were investigated at barrier reef of Palau (Western Pacific) on Apr. and Sep. At the shallow area (less than 5m), the productivity of benthic algae was high, which suggested the active consumption of DIN in interstitial water in the bottom sediment. Diffusional nutrient fluxes at the water-sediment interface were high in deep area. The maxima of phytoplankton in water column occurred at 30-40m deep, which consumed DIN diffused from the bottom sediments. The productivity of phytoplankton was almost equivalent to that of benthic algae as a whole lagoon area. The results revealed the main processes that control the vertical and horizontal profiles of DIN in water column in the lagoon.