

## A Review of Nutrient Concentrations in the Eastern Seto Inland Sea, Japan

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The water quality of the Seto Inland Sea has changed in the recent decade compared with that of the 1970s and 1980s. Although the reason is unknown, dissolved inorganic nitrogen concentrations have decreased significantly after the year 2000. Commensurate with changes in nutrient levels, the fisheries yield of species such as sardine, short-neck clam, and Nori (*Porphyra*) have also declined. One hypothesis for the gradual decrease of nutrient concentrations is due to a law enacted by the Environmental Agency, and various other efforts to improve water quality. Nevertheless, an explanation for the recent decrease of nutrient concentrations has not yet to be provided. We conducted hydrographic observations of physiological conditions, nutrient and chlorophyll *a* concentrations, and compared our results with the various previous environmental monitoring data at Harima-Nada, including connecting Shido Bay, the eastern part of the Seto Inland Sea. We found that nutrient concentrations of the bottom ocean layer during summer periods after 2000 were quite low compared to the years before 1990. Nutrient concentrations in the surface seawater did not increase when mixing occurred compared to those of the stratified season. In this study, we discuss the reasons for the recent decreases in nutrient concentrations within the context of the following: (1) decrease of nutrient loading from riverine sources, (2) decrease of recent rainfall amount and change of the manner of rainfall, and (3) decrease of the upward nutrient flux across the overlying water-sediment interface. Our results can provide valuable information for consideration in the management of nutrient concentrations of the enclosed sea.

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