

Impact of the nutrient transport through the Tsushima Strait on the ecosystem in the Japan Sea

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The Japan Sea is a semi-closed sea with narrow and shallow straits such as the Tsushima/Korea Strait. The nutrient transports through the Tsushima Strait have an impact the ecosystem around the coast of Japan. The nutrient transports are originated in the sources from the sea, Kuroshio (Pacific), Taiwan Strait, and Yellow Sea, and the sources from the land, Changjiang river, Yellow river, and dusts. We investigated the ship cruise data in the strait from 2005 to 2017 to reveal the interannual variations in the volume transport, nutrient concentration, and nutrient transport. The nutrient transport in the strait has large interannual variations of $\pm 50\%$ compared to the average transport.

The recently studies indicated the contribution ratio in the nutrient transports on the sources from the Kuroshio and the rivers also change, when the yearly nutrient transport changes (e.g. Morimoto et al., 2012).

We developed a coupled ocean circulation and ecosystem model, in which the lateral boundary condition is applied based on observation data, and investigated the biogeochemical responses in the Japan Sea and the East China Sea to the interannual variations in the nutrient flux through the Tsushima Strait. We discussed about the contribution ratio in the nutrient flux on the 6 sources from Kuroshio, Taiwan Strait, Changjiang river, Yellow river, the dust, and the bottom (Yellow Sea).

Keywords: Tsushima Warm Current, nutrient transport, the Sea of Japan