

石西礁湖における流動数値シミュレーション

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Abstract

The Sekisei Lagoon surrounded by the Yaeyama archipelago is one of coral reef areas in Japan. However, it has been partly damaged due to several causes. It is important to note that the transport of coral eggs and larvae by the flow from the source area, that is less damaged, will contribute to the recruitment and recovery of the damaged area. Our goal is to identify the trajectory coral eggs and larvae from the source area to the recruitment area based on the modeling of physical circumstances including the flow and dispersion. It will help ascertain the protective area and clarify the restoration process of damaged coral reefs. As the first step, we examine a flow pattern in summer in the Sekisei Lagoon using a numerical simulation of a multi-level hydrostatic model with a two-stepped Nested area. We focus on the flow pattern both of the whole Sekisei Lagoon and the part around Kuroshima, which locates in the southern part of this lagoon. The model is driven by the averaged wind stress in summer and the M2 tidal component. The results show that the northward current about 10cm/s, which basically follows the wind direction, dominates along the eastern coast of Kuroshima and a weak flow exists the southeastern side of Kuroshima.