

# Role of Kuroshio Current in fish resource variability off southwest Japan

\*Yushi Morioka<sup>1</sup>, Sergey Varlamov<sup>1</sup>, Yasumasa Miyazawa<sup>1</sup>

1. Japan Agency for Marine-Earth Science and Technology

Western boundary currents in the subtropics play a pivotal role in transporting warm water from the tropics that contribute to development of highly diverse marine ecosystem in the coastal regions. As one of the western boundary currents in the North Pacific, the Kuroshio Current (hereafter the Kuroshio) exerts great influences on biological resource variability off southwest Japan, but few studies have examined physical processes that attribute the coastal fish resource variability to the basin-scale Kuroshio variability. Using the high-quality fish catch data and high-resolution ocean reanalysis results, this study identifies statistical links of interannual fish resource variability off Sukumo Bay, Shikoku island of Japan, to subsurface ocean temperature variability in the Kuroshio. The subsurface ocean temperature variability off the south of Sukumo Bay exhibits vertically coherent structure with sea-surface height variability, which originates from the westward-propagating oceanic Rossby waves generated through surface wind anomalies in the Northwest Pacific. Although potential sources of the atmospheric variability remain unclarified, the remotely-induced oceanic Rossby waves contribute to fish resource variability off Sukumo Bay. These findings have potential applications to other coastal regions along the western boundary currents in the subtropics where the westward-propagating oceanic Rossby waves contribute to the coastal ocean temperature variability.

Keywords: Kuroshio, Fish catch variability, Sukumo Bay