

Impacts of global warming on fisheries estimated from climate models: An application to Japanese scallops in Hokkaido

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Climate change such as global warming is considered to affect marine ecosystem. For example, rise in seawater temperature in future may change distributions of marine species. We estimated the impacts of global warming on Japanese scallop, *Mizuhopecten yessoensis*, in Hokkaido. Japanese scallops are important target species for Japanese fisheries resources. Combining sea surface temperature output obtained from climate models and simplified indices that express distribution of Japanese scallops, we estimated suitable domains for Japanese scallop fisheries. We found rise in water temperature from 1990 to 2100 has an impact to aquaculture industries of Japanese scallops across Hokkaido. This study suggests a simplified method to estimate distributions of coastal marine species and the importance of observed data in the future projection.

Keywords: Global warming, Fisheries resources, Japanese scallop, CMIP5