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主論文の要約

博士の専攻分野の名称　博士（水産科学）　　氏名　アハマド　ファルディン　サ
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学 位 論 文 題 目

Spatial modeling of Pacific saury (*Cololabis saira*) potential fishing zones in the western North Pacific using remotely sensed data

リモートセンシングを用いた西部北太平洋におけるサンマの潜在的漁場の空間モデリング

This study has shown the usefulness of satellite remotely sensed data to obtain spatial fishing location of Pacific saury in western North Pacific, develop potential fishing modeling, and test potential impact of global warming on saury habitat. At the beginning of fishing season, fishing locations showed that most of Pacific saury vessels appeared east of the Hokkaido and south of Four Islands which gradually moved south towards the Sanriku and Joban coasts by the end of the fishing season.

The overall finding demonstrate that Pacific sauy distribution and migration in the western North Pacific are affected by sea surface temperature (SST), chlorophyll-*a* concentrations (Chl-*a*), eddy kinetic energy (EKE), sea surface height anomaly (SSHA) as well as meso-scale features such as eddies. In this study, among the suite of oceanographic variables examined, SST showed the highest contribution on distribution and migration of Pacific saury. Meso-scale feature such as eddies are also believed influence the distribution and migration. Frontal zones between the rings and surrounding cold areas are important associated with high fish catch and high biological production.

On the potential impact of global warming on Pacific saury habitat, the results showed that Pacific saury will be tended to migrate to higher latitude. Warming could also

delay the southward migration of Pacific saury and consequently change or delay the fishing ground formation around Japan and increase their spent time at higher latitudes. These outcomes were achieved by varying only SST in habitat suitability models.

Finally, I found this study appropriate in addressing some of the opportunities and challenges in marine fisheries. The study certainly relevant in ecosystem based fisheries management. Investigate integration of various oceanographic variables, prediction and feedback from Pacific saury fisheries and statistical modeling approach could expand in the future to a better performance.