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Prediction of Japanese Common Squid (*Todarodes pacificus*) Potential Fishing Grounds Using GAM and GLM with Satellite Remote Sensing Data in the Japan Sea

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The Japanese common squid, *Todarodes pacificus*, is one of the most important commercial species for in Japan. The objectives of this study are to clarify the relationship between squid fishing grounds and environmental factors using statistical models and to predict the potential fishing grounds using satellite remote sensing data and Catch Per Unit Effort (CPUE) data. The generalized additive models (GAM) were applied to analyze the relative influence of various factors on the squid CPUE. Satellite data sets, NOAA/AVHRR sea surface temperature (SST), Orbview-2/SeaWiFS chlorophyll-a concentration (CHL) and AVISO sea surface height anomalies (SSHA) data from 1997 to 2000 were used to understand spatial and temporal oceanographic characteristics of the fishing grounds. We developed the generalized liner model (GLM) with transformation of GAM. The potential fishing grounds were estimated from the satellite data using the model of GLM. SST is the most important environment factor for distribution of fishing ground, and SSHA and GC is the secondary in the environmental variables. It seems to depend on ecological significance, for example SSHA and GC depend on migration, SST depends on the growth and physiology.