

## Predicting potential fish distributions in the western North Pacific: an attempt to construct species distribution models using commercial fisheries data

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Understanding the effects of ocean conditions on distributions of commercial fish is critical for elucidating potential distributions of fish and forecasting where they will be in the future. Species distribution modellings (SDMs) enable estimation of habitat suitability for each species at a site as a function of environment factors. Traditionally modelling of species distribution has been applied to species data surveyed through standardized methods that could collect both presence and absence records, but was incapable for using presence-only data, such as those collected from fisheries or citizen monitoring schemes. Maximum entropy (MaxEnt) model provides high predictability using a presence and pseudo-absence data, which relatively fewer studies applied it to marine areas than terrestrial fields. We developed MaxEnt model to relate the occurrence records from fisheries data obtained in the western North Pacific with environment condition such as annual sea temperature and salinity from Four-dimensional Variational Ocean ReAnalysis for the Western North Pacific (FORA-WNP30), and topology. Our model indicated *Sebastolobus macrochir*, for instance, was influenced by both ocean conditions and topology, and would potentially distribute in the area where was no catch record. MaxEnt models will contribute to infer the probability of species using data of which detection was imperfect.

Keywords: ecological niche modelling, habitat suitability, sampling bias, fisheries data, mapping