Do different fishery surveys data lead to same estimations?

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Abstract: Habitat and species mapping is essential for conservation programmes because it provides a clear picture of the distribution and extent of marine resources, and thus it facilitates the management of the marine environment. The importance of a spatial management of the marine resources and that fishing contribution should be improved for the sustainable development of the ecosystem are widely recognized facts in fishery ecology. Nevertheless, the amount of objective scientific information is limited and the data may not always be strictly comparable due to variations in environmental conditions between sampling periods. In particular, the information about the status of marine species can be derived from either fishery-independent surveys or fishery-dependent surveys (skipper logbooks and/or observers). Each of these sources could provide different results in terms of spatial and temporal approximations with diverse level of detail, and could be used to identify different distribution of the species of interest. Our study aims to identify sensitive habitats of fish species and develop probabilistic spatial scenarios using different sources of fishery data in order to assess whether they detect similar, complementary or different spatial patterns. Bayesian hierarchical spatial models are used to identify the distribution of the main elasmobranchs species (*S. canicula, G. melastomus and E. spinax*) in the western Mediterranean Sea, with respect to environmental and geological variables, using two diffrent sources, observers on board and MEDITS (Mediteranean International Trawl Survey) survey. Bayesian inference and prediction are made by considering the model as a latent Gaussian model, which allows the use of the integrated nested Laplace approximation (INLA) methodology and software (Rue et al., 2009) as an alternative to Markov chain Monte Carlo (MCMC) methods. Finally, different methods are used for the comparison of the spatial structure of the patterns in order to capture and quantify the similarity and to assess which features are more truly representative of the species habitat.

References

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