Bio-economic quick scan model for fisheries management: the case of Dover sole in Belgium

Verkempynck Ruben

Instituut voor Landbouw- en Visserijonderzoek, Onderzoeksdomein Visserij, Ankerstraat 1,
B-8400 Oostende, België
E-mail: Ruben.verkempynck@ilvo.vlaanderen.be

Traditional fisheries management is often unable to create the right incentives to prevent fishermen from racing against each other. At the same time the economic motives that mainly drive fishermen are not taken into account. Fisheries management is complex and there is much uncertainty and variability. However, fisheries management does not always fail, and there is a clear understanding of what is necessary for success and alternative management systems exist. Policy makers should be able to assess the different management systems available a priori. Kulmala *et al.* (2007) already provide a bio-economic model that analyses the quota systems in the Baltic Herring fishery. In this paper we adopt and modify this model. Variability and uncertainty is incorporated through Monte Carlo simulations. We test the transferability of the model to the Belgian fisheries management, and simulate three different management systems. This quick scan tool for policy assessment shows clear outcomes of both biological and economic components of a fishery. We find that under a scenario with ITQ system the fishery is the most profitable. Simultaneously, the spawning stock biomass of the population is always above the limits of the precautionary approach. We discuss the required data input and recommend the use of metiers in fleet segmentation. The model was applied to the Belgian fisheries without difficulty. The quick scan is not only workable as such, but can also be seen as a nucleus for enlargement, including more species, etc. We provide the literature with a stochastic bioeconomic model, applicable as a quick scan assessment tool for country-specific policy making. We believe that this quick scan tool could be used to obtain economic reference points, next to traditional biological reference points enabling more comprehensive decision-making in fisheries management.