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Exploring the effects of different management scenarios for the Icelandic gadoid fishery

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Fisheries play an important part of the Icelandic economy, accounting for 41 % of the country's total export values in 2014, of which cod exports was substantial part (37%). Sound biological and economic management of the fishery is therefore essential for both the nation as a whole, as well as individual communities. In this paper an analysis is presented of management scenarios for the gadoid fishery on the Icelandic continental shelve, developed in close cooperation with Icelandic stakeholders as part of the EU-funded research project MareFrame. These scenarios investigate changes in the medium to long term from the status quo, and addresses questions such optimising harvest rates to attain Fmsy for cod, varying fleet composition and environmental concerns. To address these issues a statistical multi-fleet, multi-species model for the key species in the fishery was developed using the Gadget framework. This allowed for the estimation of the development of catches by fleet segments (trawl, net and longline) and stock size and to derive other parameters of interest. The outcomes, and their socio-economic effects, are examined based on the impact on environment (stock biomass, CO_2 emissions and condition of seabed), society (value of export earnings, employment) and industry (labour productivity and profits). An attempt is made to combine these performance statistics using multi-criteria analysis based on stakeholder input.

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