FACULTY OF BIOSCIENCE ENGINEERING

The Chancellor of Ghent University has the honour of inviting you to attend the public defense of the doctoral dissertation of

ir. Klaas Sys

Title of the doctoral dissertation:

Exploitation dynamics of the Belgian beam trawl fleet targeting hotspots of flatfish

The public defence will take place on Monday 26 March 2018 at 16:00 in the Academieraadzaal (Hall of the Academic Board), room A 0.030 at Campus Coupure, Coupure Links 653, 9000 Ghent.

You are heartily invited to the walking diner after the defence.
Please confirm your attendance before 20 March 2018 to: klaas.sys@ilvo.vlaanderen.be

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Abstract of the doctoral research

Bottom trawl fisheries, such as the Belgian beam trawl fishery targeting flatfish species, are increasingly challenged by policies, such as the landing obligation in the European Union. These policies aim to reduce the discards of fish and the physical impact of the fishing gear on the benthic ecosystem, in order to avoid irreversible ecosystem changes. In this respect, fisheries management tools that regulate fishing effort in space and time are seen as a promising management alternative for traditional output based management systems such as quota. They are assumed to reduce the impact of the fishery on the ecosystem while ensuring its socioeconomic viability. A prerequisite for the successful implementation of such management tools is that the relationship between fishing effort and catch is predictable in space and time. Therefore, the objectives of this thesis were (*i*) to gain insights into how fishery dependent data at high spatiotemporal resolution can be used to predict this relationship, and (*ii*) to analyse how this relationship is affected by the distributional and operational characteristics of fishing fleets. Various quantitative modelling techniques were used to analyse landing and effort data of the Belgian beam trawler fleet. The results of this thesis revealed (*i*) the occurrence of a feedback loop between the temporal distribution of fishing effort and fish abundance, (*ii*) the emergence of spatial exploitation patterns with respect to the tactical decisions of fishers, and (*iii*) the occurrence spatial interactions between fishing vessels. These processes complicate our ability to accurately predict the relationship between fishing effort and catch in space and time and the interpretation of fisheries dependent data sources. Therefore, this uncertainty should be acknowledged in the design process of effort based management tools.

Brief Curriculum Vitae

Klaas Sys was born in Bruges on 30th November 1986. He obtained a Master of Science of degree in Bioscience Engineering (Agriculture) in 2011 from Ghent University. He started a PhD research in March 2014 at the Research Institute of Agriculture, Fisheries and Food (ILVO) in collaboration with the department of Agricultural Economics of Gent University. During his PhD track, Klaas obtained the certificate of the doctoral school of engineering. Klaas has two first-authored scientific articles published in international peer-reviewed journals and one second-authored peer-reviewed book chapter. He presented his work at several international conferences.

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