

# EFFORT ALLOCATION OF THE DUTCH BEAM TRAWL FLEET

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This thesis addresses the question how fishers allocate their activities in space and time. Understanding the mechanisms governing the dynamics of fishing fleets is important to understand how fishers respond to management measures and changes in their environment. This knowledge can be used by fisheries managers to design efficient management measures. The study focuses on demersal fisheries exploiting a mixed bag of bottom dwelling flatfish.

The results in the thesis show that the fisheries respond to the seasonal changes in distribution of their main target species sole and plaice. Area specialization of fishers as well as interference competition among vessels play a role in shaping the spatial distribution of the fleet within the constraints put by management. A dynamic state variable model was developed to study the effect of management constraints on fishing effort allocation and discarding. The model evaluates the trade-offs and constraints that individual skippers face in their fishing operation.

Management measures change the trade-offs and constraints shaping the choices of individual fishers, resulting in changes in spatial distribution of the fleets as well as other aspects of fleet behaviour. It is shown that the beam trawl fleet has shifted its fishing effort increasingly south, as a result of the increasingly restrictive plaice quota. This has resulted in an increased catchability for sole and young plaice, and an incentive for individuals to discard marketable fish.