

Title: **Fishing for What? Fisher Decision Making in the South-West of England**

Authors: Kirsten Abernethy, School of International Development, University of East Anglia (UK)
Bereket Kebede, School of International Development, University of East Anglia (UK)
Eddie Allison, The WorldFish Center (Malaysia)
Nick Dulvy, Simon Fraser University (Canada)

Abstract: How do fishermen choose where to fish? A logistic random utility model (RUM) of fisher location choice by beam trawlers in the southwest of England was used to help answer this question. The RUM was parameterised using data from the EU vessel monitoring system, the UK logbook Fishing Activity database and the UK Fishing Vessel Register from 2005 to 2008. Individual vessel location choices and model variables were aggregated to ICES statistical rectangles (approximately 30 nautical miles square) by month. The model outputs show that vessels in southwest England made location choices (in 2005 - 2007) based on recent economic returns (value of catch per hour fished) in the month prior and in the previous year in the same month. Vessel skippers also made decisions based on the economic returns of the entire fleet; and tended to choose locations that yielded higher economic returns to the fleet compared to other available locations. This suggests a transfer of knowledge on what others in the fleet are catching and where. Beam trawlers also appeared to be risk-averse, preferring to fish locations closer to their homeport, and at locations with less variance in the value of catch per unit effort at a location, even if the economic returns could be high elsewhere. Vessels also preferred to fish in deeper water, particularly the larger vessels of the fleet. To evaluate the model's predictive ability, we compared 2008 location choices with predicted choices using the 2005 - 2007 model coefficients. The model correctly predicted vessels not fishing in a rectangle in 97% of cases and correctly predicted where vessels fished in 56% of cases. The predictive ability of the model varied by ICES statistical rectangle and month and the spatial density of predicted choices corresponded closely to the observed choice densities. This study shows that a RUM approach can be of practical use for policy makers who want to determine the factors that influence location choice of fishers and with further model development may be useful for predicting fisher response to management action.