

Fully Documented Fisheries

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Over the last decades Electronic Monitoring (EM) has emerged as a successful and cost efficient technology to improve catch monitoring programmes of fisheries around the world. Through enhanced registration of fishing effort and location and the ability of a 100 % video monitoring coverage, EM has the potential to provide improved representative information of fishing compared to any conventional monitoring method. In addition, EM incentivizes better compliance and initiates discard reduction. The common approach used to analyse the vast amounts of video recordings, often thousands of hour of footage, is an audit-approach: Recorded footage is used to verify against, a randomly selected subset, of (self-)recorded catch data in logbooks. This approach significantly reduces the time consuming labour of manual review of video-data, but, requires a contribution and cooperation from the fishers to provide catch data in logbooks. Normally, implications for fishers are minimal, since providing detailed information on landed catch and fishing activity is common practice in most fisheries. However, under the current situation of the reformed Common Fisheries Policy of the European Union (EU), the burden of recording of the catch increased significantly. To comply with regulations of the EU landing obligation weighing and recording of fish below the minimum reference size, for all of quota restricted species, on a haul-by-haul basis is mandatory. This implies a significant increase of workload on fishers in sorting, weighing and recording quantities of unwanted and unmarketable catch. A consortium of Wageningen University and Research (WUR) and the fishing industry, Visafslag Hollands Noorden, investigates the possibility to automate the process of catch recording in the Dutch bottom trawl fishery. Such a system enables recording of the complete catch (of quota restricted species) under the landing obligation, without interference of fishers and facilitates fleet wide implementation of an European registration obligation. To create the ability to detect, classify and register different discarded fish species from debris, automated catch recording requires innovation of EM methodology, and integration of computer vision technology and artificial intelligence. During an oral presentation we would like to present the development of our automatic catch recording system. Additional features entail the estimation of weight and length of the discarded fish, to provide the opportunity to separate fish above and below the Minimum Conservation Reference Size (MCRS) and record total discard weight by species. We apply stereo camera technology to acquire 3D images and combine these with 2D RGB images. Neural Networks are used to support fish species identification and the weight estimation.