

Remote electronic monitoring and the landing obligation – some insights into fishers' and fishery inspectors' opinions



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ARTICLE INFO

Keywords:

Fisheries management
Discard ban
Compliance
Fully Documented Fisheries
Fishery inspectors
Interviews

ABSTRACT

The European fisheries management is currently undergoing a fundamental change in the handling of catches of commercial fisheries with the implementation of the 2013 Common Fisheries Policy. One of the main objectives of the policy is to end the practice of discarding in the EU by 2019. However, for such changes to be successful, it is vital to ensure stakeholders acceptance, and it is prudent to consider possible means to verify compliance with the new regulation. Remote Electronic Monitoring (REM) with Closed-Circuit Television (CCTV) has been tested in a variety of fisheries worldwide for different purposes and is currently considered as one possible tool to ensure compliance with a European ban on discards.

This study focuses on Danish fishery inspectors and on fishers with REM experience, whose opinions are less well known. Their views on the landing obligation and on the use of REM were investigated using interviews and questionnaires, and contrasted to some fishers without REM experience. 80% of fishery inspectors and 58% of REM-experienced fishers expressed positive views on REM. 9 out of 10 interviewed fishers without REM experience were against REM. Participation in a REM trial has not led to antipathy towards REM. Fishery inspectors saw on-board observers, at-sea control and REM as the three best solutions to control the landing obligation but shared the general belief that the landing obligation cannot be enforced properly and will be difficult for fishers to comply with. The strengths and weaknesses of REM in this context are discussed.

1. Introduction

The pressure for a change in fishing practices in the European Union (EU) increased throughout the 2000s, not least due to public demand like the *Fish Fight* campaign that demanded the end of discarding in the EU [1–4]. Discards are the part of the catch that is returned to the sea [5]. The public and environmental NGOs perceive discarding as unsustainable, unethical and a waste of resources, which has led to attempts to limit or end the practice [4,6–9]. Measures for this include increased gear selectivity, effort restrictions, quota limitations, temporal and spatial restrictions, transferability of quotas and discard bans [3,10,11]. Discard bans have been in place in Iceland since 1977, in Norway since 1983 and at the Faroe Islands since 1994 [11,12]. With the entry into force of the landing obligation of the 2013 Common Fisheries Policy (CFP) a discard ban is now also being implemented in the EU [13]. Banning discards is meant to ensure that total catches do not exceed the threshold defined by the regulatory

framework (e.g. Maximum Sustainable Yield, MSY). Compliance with the landing obligation therefore requires a Catch Quota Management scheme (CQM) that aims at managing both wanted and unwanted catches. Documentation of all catches is thus required to verify CQM, a concept referred to as Fully Documented Fisheries (FDF) [4,14,15]. Measures to conduct FDF include self-sampling, reference fleets, on-board observers and Remote Electronic Monitoring (REM) with Closed-Circuit Television (CCTV) [16]. The use of REM with CCTV, henceforth referred to as REM in this paper, as a tool to obtain FDF has been tested in a number of countries, including Canada, the US, Australia, New Zealand, Denmark, the UK, the Netherlands and Germany [14,15,17–31]. Ongoing technological developments are taking place to increase the reliability, the cost-efficiency and the scientific added-value of the data collected by REM [23,32]. The primary reservation against REM has however not been on data validity but on the ethical dilemma as to whether the surveillance level imposed by such a measure is acceptable [3,16,33]. A study among UK

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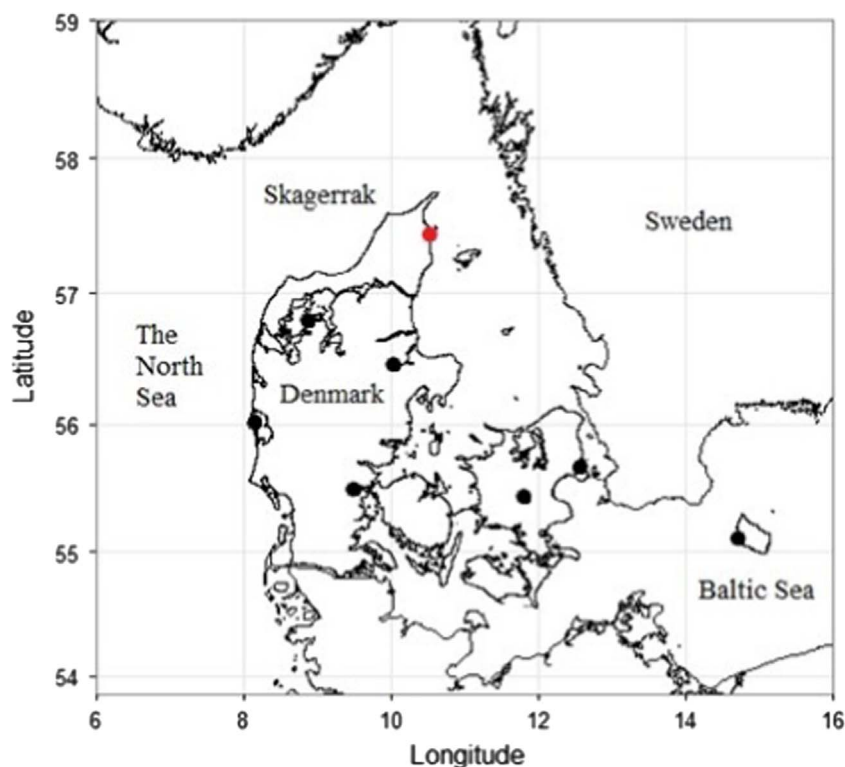


Fig. 1. Permanently manned fisheries control departments in Denmark. Black dots represent departments from where responses to the questionnaire were obtained, seven in total. Red dots represent departments where no responses to the questionnaire were obtained, one in total.

fishers showed that REM was seen as an intrusion and that fishers had concerns on whether video footage could be used to discredit the fisheries [16]. The authors also investigated which incentives could mitigate the perceived nuisance and encourage participation in FDF, with direct payment and additional quota scoring highest [16]. Much less known are the views among another primary group of REM users, the fishery inspectors in charge of enforcing the regulations imposed on the fisheries. The nature of their work and their day-to-day interactions with fishers provide fishery inspectors with experience and detailed understanding of regulations and of practical issues in the fisheries, but little attempt has been made so far to collect their knowledge and integrate it into the design of the fishery policy. Accordingly, this study investigates the opinions of Danish fishery inspectors' on the use of REM as a measure for control, monitoring and surveillance (MCS) and on their expectations for the landing obligation, in order to assess whether coercive measures are likely to be needed to ensure compliance with the landing obligation. A similar investigation among some Danish fishers is also conducted, including both fishers with and without REM experience, in order to contrast the results. The main driver for fishers is to ensure profits through the harvest of fish stocks whereas fishery inspectors' main objective is to enforce fishery regulations: Hence, it is expected that the perception on the meaningfulness and the viability of different regulations as well as on the practical obstacles imposed by these regulations may vary between these two groups of stakeholders. This article therefore aims at highlighting specific areas of convergence or divergence of perceptions between fishery inspectors and fishers.

2. Material and methods

2.1. Questionnaires for fishery inspectors

The Danish fisheries control is organised as part of the Danish AgriFish Agency under the Ministry of Environment and Food of Denmark. The fisheries control is organised with the central office

placed in the capital, seven departments with a permanent staff and three control vessels [34,35]. The collaborators at the Danish fisheries control stated that they preferred a questionnaire to semi-structured interviews and believed that a higher proportion of responses would be obtained if the fishery inspectors received and responded to the questionnaire by email rather than if they were contacted in person or by telephone. A questionnaire covering 16 questions and intended to take approximately 10 min to complete was therefore developed. The majority of the questions were open-ended questions, except for questions relating to the ranking of MCS measures and positive/negative effects on the marine environment and fisheries, which were close-ended, though with possibility for a follow-up explanation. Prior to distribution, the questionnaire was tested and revised with a Senior Fisheries Officer from the Danish AgriFish Agency experienced with the use of REM in the fisheries control. A Chief Officer distributed the questionnaire by email to all sections in the Danish fisheries control. The Danish fisheries control head office in Copenhagen did not actively encourage fishery inspectors to respond to the questionnaire but knew of it and permitted the survey. Respondents returned the filled questionnaire by email to the Chief Officer who collected and forwarded the questionnaires. Respondents were thereby anonymous to the author of this article but not to the Chief Officer. On two occasions, the Chief Officer sent reminders to departments from where no responses had been received after three months. In total, these reminders led to four additional respondents. Based on the diverse answers from the respondents (see Section 2.2) this central collection is not expected to have influenced the answers from the respondents.

2.2. Fishery inspectors' representation

The total number of relevant fishery inspectors in Denmark was 95 at the time of writing. 30 fishery inspectors filled in and returned the questionnaire, corresponding to 31.6% of Danish fishery inspectors. Respondents came from the central office in Copenhagen, from six out of seven regional departments and from two out of three control vessels

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