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Fishers' perceptions of the European Union discards ban: perspective from south European fisheries

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ABSTRACT

The estimated impact of the EU Landing Obligation was investigated, which bans discards of regulated species, in South European fisheries through stakeholders' perceptions with the intention to identify implementation shortcomings and practicalities that might lead to obstacles to enforcement. Structured interviews were conducted with 173 fishers in 4 countries practicing 4 generic fisheries (as typified by the dominant fishing gear) asking a total of 26 questions. Results show that fishers estimate that the full implementation of the discards ban will result in longer sorting times. Added to the limited space on board, especially in the more productive trawl and purse seine vessels, this may lead to practical difficulties in relation to compliance. Most of the respondents estimate that there are no realistic possibilities of utilizing the formerly discarded fish in the short term, because of the lack of adequate infrastructure on land Furthermore, the possible utilization types foreseen in the regulation will not help offset the costs of bringing former discards to land. The outcomes of this study have confirmed the implementation difficulties of the landing obligation, especially when the fishing industry cannot expect any medium to long-term benefits.

1. Introduction

The European Union recently modified its Common Fisheries Policy and brought into force the prohibition of discarding catches of regulated species [16]. A Landing Obligation (LO) was included in this reform (Article 15 of EU Reg. 1380/2013) affecting all commercial species subject to catch limits or minimum landing sizes. These catches shall be hauled and retained on board the fishing vessels, recorded and landed at ports, and may enter the productive economy, but only for uses other than direct human consumption. The EU expects that forcing fishers to land former discards of regulated species will be a significant step towards more selective fisheries, while the products eventually landed could be of some use and might be commercialized [31]. The LO entered into force in 2014, but is being applied progressively across different stocks and fisheries (started with small pelagics on January 1st, 2015) and it is expected to be fully enforced by Jan 1st, 2019 [16]. The motivation behind this regulation was the perception that high amounts of discards represent a structural deficiency of European fisheries [15]. Discards generated by the European fleets can be more than 60% of the biomass captured in demersal fisheries [23]. In discarding fisheries, resources that could be used productively, for instance processed as fish meal, are wasted. Therefore, the discard ban aims at rationalizing the fishing process, through selective gears and sustainable practices [20]. Additionally, by adding an extra burden to fishers, this management measure should incentivise more selective fishing practices. In the long term, Art. 15 of EU Reg. 1380/2013 should

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contribute to a decrease of fishing mortality and an improvement of the exploitation of European marine resources. However, the successful implementation of the LO will rely heavily on the provision of effective technical solutions and finding appropriate incentives that will encourage fishers to adopt more selective harvesting methods [3,40].

In southern European fisheries the amount of discards is perceived by scientists and policy makers to be high, but with important variation across fleet segments and fishing gears [38]. For example, Tsagarakis et al. [37] estimate values generally between 13% and 27% in the different Mediterranean fisheries, with extreme values of 0% and 90% in certain cases. In Portuguese purse seine fisheries discards estimates in the range between 3–51% in weight are reported [18,28,5], while the range is between 13–15% for the Spanish purse seiners [23]. Although small scale fisheries using fixed gear are generally perceived as fisheries with lower discards rates, Shester and Micheli [33] question the broad generalization that small scale fisheries are inherently more sustainable than industrial fisheries. Specific studies in small scale fisheries in southern European fisheries report a range of 13–22% in Portuguese trammel nets [2] and a sizeable 40% in lobster trammel net fisheries of the Balearic islands [30]. A recent study [32] analysing Italian official data (EU Data Collection Framework, DCF) from 2009 to 2014 regarding the species characterising the otter bottom trawl fisheries (for which the LO provisions are in force since Jan. 1st, 2017), show that the discards of European hake varied from 5% to 20% of the total catch, depending on the marine region, while for the red mullet and, more evidently for the deep water pink shrimp, discards were scarce. For species that do not characterise the trawl fisheries (for which the LO will enter in force on Jan. 1st, 2019), the same authors report negligible values of discard for Norway lobster and red shrimps, but high values, up to 75%, for mid pelagic fishes, such as horse mackerels. Finally, Sartor et al. [32] report that the discards of the species characterising the set net fisheries, such as the striped red mullet and the common sole, are low, less than the 2% of the total catch in weight. The amount of discards per fleet segment is generally known with low precision [38], reflecting both the relatively low intensity of discard studies and the high variability in the amounts of fish discarded, even within a single fishery [26].

Discarding of commercial fish caught in bottom trawls in many south European countries has risen over the last 70 years based on information gathered by interviews, while changes in the species composition of the discarded part were evident, attributed mainly to changes in market demand, and recent legal and regulatory restrictions [11]. Reasons for discarding vary and depend on many factors and different local parameters which define landings. The economic development of fishing communities across the Mediterranean is a possible indicator of fisheries exploitation pattern, with wealthier communities being the most selective ones in comparison to poorer ones that land and consume a wider spectrum of species and sizes [37]. The role that fishers play in determining the landed portion is critical and a series of decisions onboard and in land define the harvested biomass finally landed [14].

For the successful implementation of sensitive fisheries policies, such as the implementation of the LO, knowing the perceptions of the agents involved is of paramount importance [17]. Understanding the perception of the fishing industry on the LO should help increase the legitimacy and favourable reception of the regulation and diminish the potential of conflicts in its application [27,29], as well as reduce the risk of unintended consequences (Fitzpatrick et al., 2017). However, in south European fisheries, low levels of compliance with regulations [10], and particularly in the Mediterranean Sea, the institutional setting of fisheries management (based on effort control, Damalas [9] may further jeopardize the implementation of the LO due to resistance on the part of industry. Fishers' adaptive capacity and ability to alter their fishing techniques, by i.e. using more selective devices or maximizing the operating profits with optimal routes, will eventually define the impact of the landing obligation [7].

The objective of this work is to investigate the perception of the fishing industry in South European waters (Portugal and Mediterranean EU countries) with regards to the implementation of the EU Landing Obligation and whether significant differences in perceptions can be detected across countries, fleet types, length of vessels or fishers. The perceived outcomes of the landing obligation and the potential incentives for compliance are also discussed. It is important to carefully examine fishers' strategies and take into account fishers' perceptions based on their socioeconomic profile [6], since management tailored to local peculiarities may facilitate the design of effective management and may help to achieve a smooth transition towards the landing obligation.

2. Material and methods

2.1. Data source: the interviews

A questionnaire containing 26 questions investigating the fishers' perception of the Landing Obligation was designed, organized in 6 blocks of questions (Appendix A):

1. Current discarding practices, before the implementation of the LO: questions Q44-Q49;
2. Knowledge of the LO: questions Q50-Q54;
3. Short Term impacts: questions Q55-Q58;
4. Incentives for Compliance: questions Q59-Q66;
5. Utilization: question Q67;
6. Impacts of the LO: questions Q68-Q69.

Except for block 5 (Utilization: Q67), all questions were closed-ended. Questions Q44[1] to Q58 and Q68-Q69 were dichotomous (Yes/No), while Q59 to Q66 asked the level of agreement of the interviewee on a 5-point Likert scale, ranging from strong disagreement to complete agreement. No answer (N/A) was allowed. The question on utilization of former discards under the LO (Q67) was open-ended, although the interviewer expected 3 or 4 types of utilization.

Interviewees were fishers (ship masters, ship owners or crew members) selected from the main fleet segments operating in representative ports of the study areas where EU project MINOUW[2] takes place. The study was conducted in 6 areas, located in Greece, Italy, Portugal and Spain (Fig. 1). The questionnaire was designed to carry face-to-face interviews. The interview process started by signing a consent and confidentiality form, along with a short verbal description of the objectives of the project and handing over a paper copy of the project's brochure (available at http://minouw.icm.csic.es/?q=outreach). Both the interviews and the brochure were in the native language of the interviewee. The interviews were conducted from Oct 2015 to May 2016.

2.2. Statistical analyses

Discrete choice modeling (binomial and multinomial regression) was used in order to examine any differences in perceptions between experienced fishers, large vessels, different gears and countries. The use of discrete choice modeling to explain fishers' behaviour is largely applied in fisheries science and economics [36]; Fitzpatrick et al., 2017, [6].

The dichotomous responses (Yes/No) in blocks 1, 2, 3 and 6 were subject to a binomial test to examine whether the percentage of

[1] Questions Q1 to Q43 concerned technical characteristics of the vessel; estimates of costs and volume of catches; and other aspects that are not closely related to the perception of the Landing Obligation.

[2] Research and Innovation Action of the EU Horizon 2020 "Science, technology and society initiative to minimize unwanted catches in European fisheries", ref. 634495, March 2015 to February 2019.

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