

Theme session L

Linking fisher attitudes, behaviours and beliefs to compliance in fisheries management

Conveners: Sarah Kraak (Germany), Fanny Barz (Germany), Mary Mackay (Australia)

Keynote speaker: Ingrid van Putten (Australia)

Overview

Fisheries management is expected to influence the behaviour of fishers, but few studies have looked at what goes on in the minds of those who are supposed to be influenced. The study of fishers' views and attitudes is relatively new, despite much recognition that compliance is influenced by the fishers' acceptance of the regulations. Therefore, to design effective fisheries management systems, it is important to understand fishers' beliefs and attitudes and how management systems and regulations affect their daily life and fishing activities.

Fishers are a heterogeneous group and fisher experience, attitude, and fishing styles differ between countries, cultures, and between and within fisheries. Individual fishers differ with respect to financial situations, business structure, attitudes towards new technology, ecological values, religious practices, how strongly they identify with their profession, personality traits such as whether they are risk-averse, cooperative, etc. Management approaches should therefore aim to understand and ideally accommodate local contexts and individual differences, with some approaches more suitable and effective for certain fishers, fisheries, or countries than others. Multiple management approaches that target the divergent fisher types may be necessary for effectively achieving compliance.

Higher levels of voluntary compliance will likely result from designing fisheries management that accounts for personal factors and fisher beliefs. This improved compliance could then reduce the impact costs of non-compliance and implementation costs of traditional deterrence measures such as control and sanctions.

The aim of this session was to solicit presentations of research, particularly in the social and behavioural sciences, investigating how fishers' beliefs and attitudes may lead to certain fisheries outcomes to further contribute to the conversation of fisher heterogeneity in fisheries management.

Presentations and live session

We received a healthy number of abstracts in response to our call to papers in 2020. Although, unfortunately, a few of our presenters were no longer able to participate in the rescheduled virtual conference in 2021, we retained a large volume of diverse and interesting presentations for our session. We had presenters from Europe, the United Kingdom and Australia who ranged from early-career researchers to an emeritus professor. We initially encouraged people to present their work in innovative ways, such as "pecha kucha", storytelling, interactive, in the form of a debate, a talk without PowerPoint or Prezi, through a short

movie, a demonstration, an experiment or a game, etc. Due to the change to an online-event, the format of 6-minutes videos was quite prescriptive for the participants. However, some contributions were very creative. One contribution that we want to mention was an interactive “meet the fishers” contribution. Dr Nathalie Steins et al. asked researchers to pose

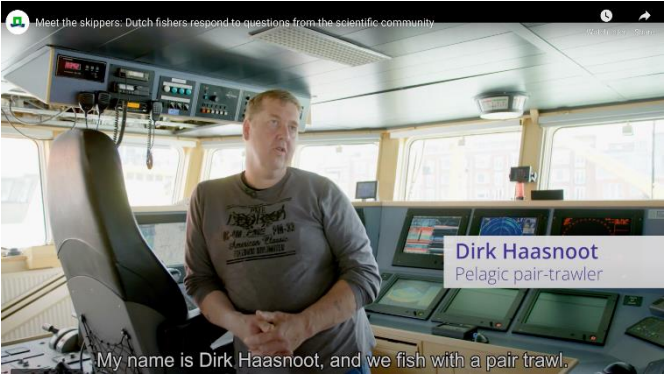


Figure 1 - Screenshots from “meet the fishers” video and from the live session

questions via twitter before the conference and asked two Dutch fishers the submitted questions. This resulted in a 10-minute video of the fishers answering the questions as part of the session. In addition to this we had 4 fishers ready to answer additional questions from the fisheries-researchers and ask themselves questions to the researchers during the live session (Figure 1). Besides that, we had initially hoped to have more contributions focussing on the actual heterogeneity of fishers. While some presentations fit that topic very well, other presentations were not that close to our description of the session. However, they all revolved around understanding fisher behaviour that can lead to informed management and policies.

We broadly grouped the talks into four groups which is how we themed the Q&A section of the live session. The themes and speakers are in the table below.

Theme	Speaker
Compliance theory	overview/ Andries Richter, Mary Mackay, Alina Wieczorek, Ingrid van Putten
Discards/ bycatch behaviour	Julia Calderwood, Teresa Pilar-Fonseca, Fanny Barz, Xiaozi Liu
Co-management/ stakeholder engagement	Amanda Schadeberg, Vera Köpsel, Lluís Miret-Pastor, Océane Marccone
Modelling behaviour	Paul J. B. Hart, Kevin Haase, Scanu M, Serra Örey

It was noteworthy that the session brought such varied research, topics, and approaches from experimental lab experiments, long term stakeholder engagement, surveys, interviews, and various types of modelling. It proves that such a sticky problem cannot be solved or understood by just one approach, showing that there is heterogeneity on different levels.

As far as high-merit contributions to the session are concerned, we commend Dr Nathalie Steins and colleagues for engaging some willing Dutch fishers to answer questions from the academic community. The intention was to have the fishers in person during the conference which would have been a very enjoyable experience. A point that emerged in many of the presentations and our discussion was the need for genuine interactions and engagement with the fishing industry and fishers themselves and we were grateful to have some participants putting those words into action.

Within the session presentations, two of the early-career researchers were awarded conference prizes (Figure 2).

1. Serra Örey won the “best poster” prize on her PhD project investigating spatial and temporal patterns in vessel movement data. Specifically, focusing on understanding the behaviour of North Sea brown shrimp fishers by analyzing high resolution individual vessel tracks and related social, environmental and economic parameters. Her poster gave an overview of the three main goals of this project. First, the statistical

investigation to pinpoint important factors influencing fishing activity; secondly to implement an agent-based bio-economic fleet model; and finally, to apply the model to test the implications of several different management scenarios, e.g., to understand which implementation may benefit both the sustainable fishing practice and a healthy stock.

2. Alina Wiczorek won the “people’s choice” award for her poster on the potential application of behavioural economics in a fisheries context, a review study by early-career researchers that the ICES Working Group on Maritime Systems (WGMARS) commissioned. Alina, along with two other ECRs, Amanda Schadeberg and Julie Krogh Hallin, from heterogenous backgrounds, developed a systematic review protocol in close collaboration with the WGMARS group. The poster presented the preliminary findings of this study and shared insights about a new way of addressing research questions within the ICES network through active inclusion of early career marine researchers.

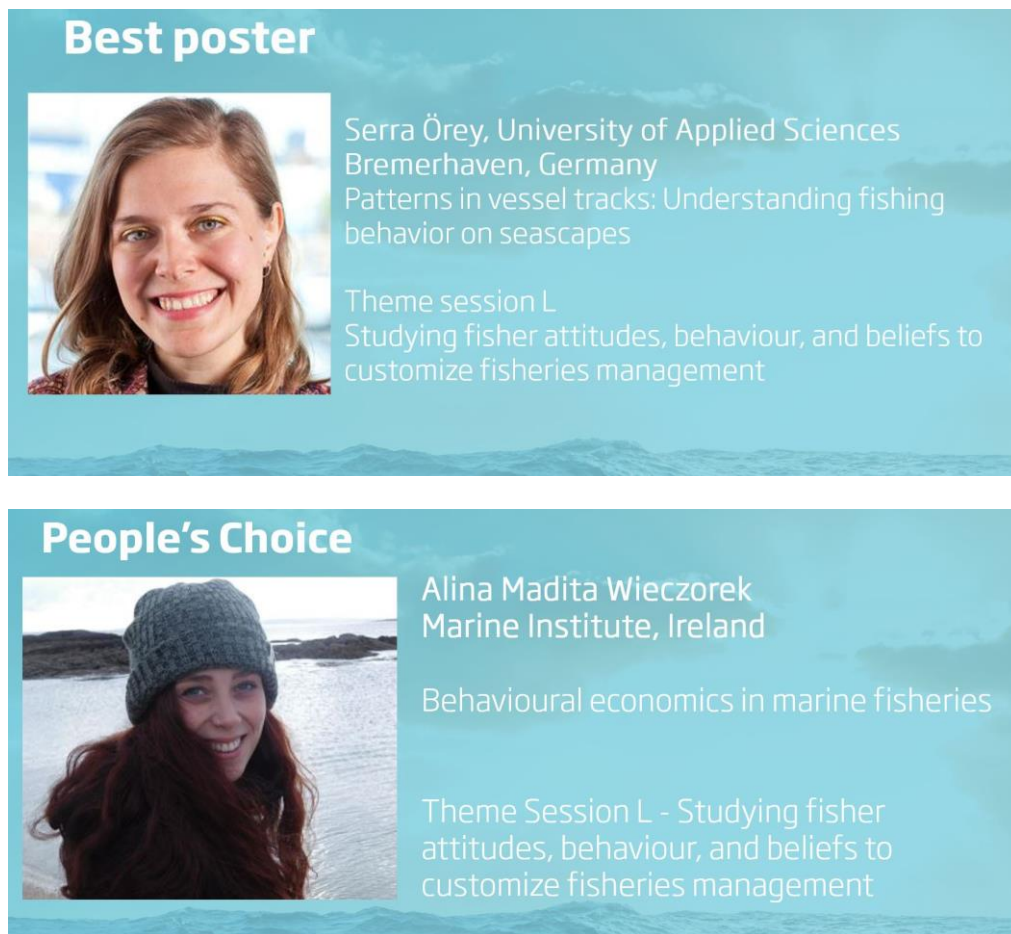


Figure 2. The two awards given to early-career researchers in our session.

As mentioned before, not all presentations revolved around the very specific topic we aimed for. However, there were a lot of great ideas in them, especially with reference to new and adaptive management. So, we propose that during the next ASCs there could be more network-sessions, where people could interactively discuss the theme of heterogeneity and customized management with a room full of people (perhaps using break-out groups and interactive techniques). A session in this format would not have a call for presentations but have designated topics for discussion which would

be facilitated by the session conveners. In our live session where we had a brief discussion between participants and fishers there was lots of engagement with plenty of ideas being raised. We as conveners would like to maximise on the enthusiasm and interest in this topic and raise the profile on this research.

Concluding

In conclusion, the session topic attracted quite some attention with 18 pre-recorded presentations, 165 attendees to the live session and 40 pre-asked questions (15 of which asked by the conveners) of which approximately 20 were asked and answered during the live session. In the live session, each of the presenters and 4 Dutch fishers had gotten the chance to state their views on a variety of issues within the topic. It was a highlight to hear the fishers themselves voice their opinions about how to fish more sustainably and about self-management – about the latter they were not unanimous: one fisher rejected the idea while others embraced it but pointed out that not all stakeholders may agree on what constitutes sustainability. Overall, the session afforded a very diverse look onto the study of fisher attitudes, behaviours and beliefs, especially in relation to compliance. Clearly, our scientific community is aware that in order to improve the efficiency and effectiveness of fisheries management, it is important to understand what drives and motivates and also inhibits fishers in their daily practice and in their responses to management measures. Nevertheless, the discussion of whether fisheries management should be customized to take account of the cultural and especially the sociological and psychological differences among individual fishers is clearly still in its infancy, as actually only the conveners plus two presenters who had contributed to the formulation of the session topic (Ingrid van Putten and Amanda Schadeberg) had elaborated on it in their presentations and in the live session. In addition, the issue of “bad apples” / “free riders” (non-compliant fishers) was touched upon. We believe that the question of customized management warrants further discussion to stimulate scientific research into this, which may eventually trickle through to advice on how to design effective fisheries management. For that reason, we propose a networking session on the topic “one size does not fit all” at a future ASC so that we can have a more interactive discussion of it with interested scientists and thereby inspire a research agenda for the future.