Summary of the boarfish avoidance project (2012-2015)

PELAGIC FREEZER-TRAWLER ASSOCIATION

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Introduction

Avoiding the bycatch of boarfish (Capros aper) in the pelagic trawl fishery would create a desirable improvement in selectivity. Bycatches of boarfish are difficult to handle on the vessels because the fish have a strong tendency to clutter. And under the new landing obligation for pelagic fisheries, most EU countries do not have quota for these species, but they still need to land them if them if the small de minimis would be exhausted.

De Redersvereniging voor de Zeevisserij (RVZ) worked with IMARES and MARITIEM to develop tools to avoid the bycatch of boarfish. This consisted of four elements:

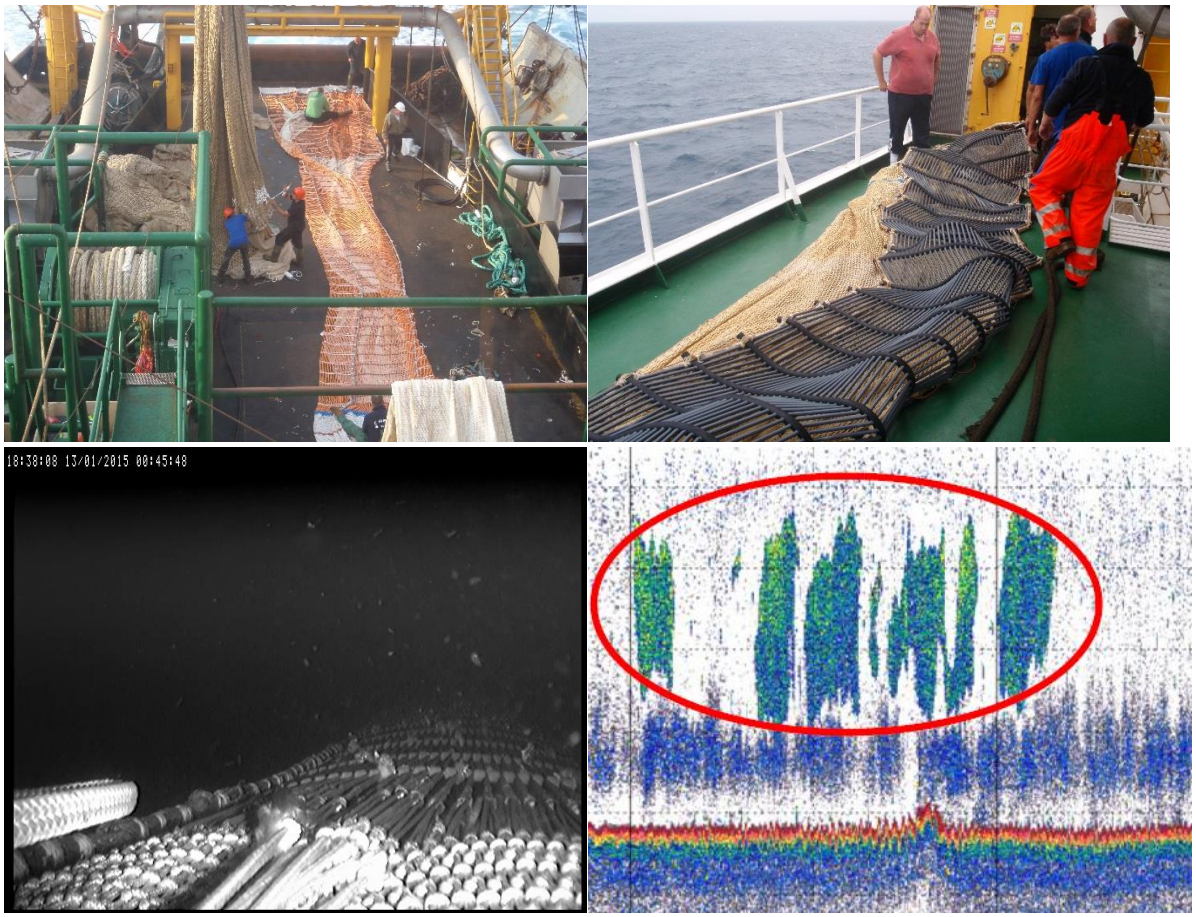
1. Using grids to allow boarfish to escape
2. (Live) Camera view on species composition in the trawl and escape behaviour
3. Acoustic characterization of boarfish
4. Acoustic species recognition of boarfish.

Main conclusions

In the course of the project, several escape grids have been developed and tested. Although the grids seem to be effective in allowing certain undersized specimen of target species to escape (notably mackerel, blue whiting), the grids have not been found effective for boarfish so far. This is likely because boarfish is not an active swimmer and can therefore not reach the escape grids. This is also evident from the camera footage taken on top of the escape grid.

The acoustic characterization of boarfish has been completed by taking MRI scans of boarfish and modelling the swimbladder shape and proportions. Unfortunately, the swimbladder properties generate acoustic reflectivity that is very similar to horse mackerel. This means that the acoustic species recognition can be carried out between e.g. mackerel and boarfish, but that the discrimination between boarfish and horse mackerel is not yet feasible with the frequencies used.

More work will be needed using different type of escape solutions (e.g. passive escape behaviour) and potentially broadband echosounder information to allow for better recognition.



Left to right and top to bottom: Escape grids based on dyneema, escape grids based on dyeema with PVC cover, still from net camera showing a haul of boarfish and no boarfish escaping from the grid on SCH81 Carolien, acoustic identification of boarfish schools on SCH6 Alida.

Documents

Fassler, S. M. M., O'Donnell, C., and Jech, J. M. 2013. Boarfish (Capros aper) target strength modelled from magnetic resonance imaging (MRI) scans of its swimbladder. ICES Journal of Marine Science, 70: 1451-1459.

Pastoors, M. A., Van Helmond, A. T. M., Van Marlen, B., Van Overzee, H. M. J., and de Graaf, E. 2014. Pelagic pilot project discard ban, 2013-2014. Rapport C071.14. http://edepot.wur.nl/301926

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