Adaptive bycatch reduction in penaeid trawls via rapid adjustments to headline height

Penaeid trawling is among the world’s least selective fishing methods; a characteristic that has evoked spatial closures being implemented in some fisheries if certain bycatch limits are exceeded. For decades, considerable work has been done to develop modifications to penaeid trawls that reduce unwanted bycatches, with most focussed at the posterior section (i.e. codend). More recently, efforts have examined ways to prevent bycatch entry into trawls entirely—via modifications to anterior components. This study assessed the utility of proactively lowering the headlines of Australian penaeid trawls, using clips at the otter boards, to 68% and 54% of their conventional height, and demonstrated mean total bycatch reductions (by weight) of 69% and 79%, respectively, with no effects on the targeted Metapenaeus macleayi (Haswell). The results provide insights into the location and behaviour of various species in the water column preceding capture, and support a simple and easy method for regional fishers to use in situ to avoid excessive bycatch and associated fishing closures. More broadly, the data support ongoing efforts in other penaeid-trawl fisheries to reduce bycatches via similar, rapid adjustments to anterior components, depending on species-specific behaviours during capture.

General information
Publication status: Accepted/In press
Organisations: Section for Ecosystem based Marine Management, National Institute of Aquatic Resources, IC Independent Consulting, University of Queensland
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Number of pages: 8
Publication date: 2019
Peer-reviewed: Yes

Publication information
Journal: Fisheries Management and Ecology
ISSN (Print): 0969-997X
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
Original language: English
Keywords: Bycatch reduction, Headline height, Penaeid trawls
DOIs: 10.1111/fme.12377
Source: FindIt
Source ID: 2452772788
Research output: Contribution to journal › Journal article – Annual report year: 2019 › Research › peer-review