

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<p>Eighth Meeting of the Seabird Bycatch Working Group</p> <p><i>Wellington, New Zealand, 4 – 6 September 2017</i></p> <p>Update on electronic monitoring and logbook verification in Australian Commonwealth fisheries</p> <p><i>Claire Wallis, Jonathon HS Barrington</i></p>
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This paper has an attachment:

AFMA, 2016. Bycatch Handling: AFMA Bycatch Handling and Treatment Guide 2016/17. Australian Fisheries Management Authority, Canberra, March 2017. Available at: http://www.afma.gov.au/wp-content/uploads/2017/03/AFMA-Bycatch-Handling-and-Treatment-Guide_-2016-17_Public-Doc_FINAL.pdf

SUMMARY

Electronic Monitoring (EM) was implemented by the Australian Fisheries Management Authority in three Australian Commonwealth fisheries in July 2015. EM was introduced in the demersal longline gillnet fisheries (which target shark and scalefish), and pelagic longline tuna fisheries. This paper briefly outlines the objectives and operating principles Australia is using EM to meet, and contextualises EM technology as one component of the suite of fishery monitoring tools used in Commonwealth fisheries. Australia's experiences of logbook verification following the introduction of EM is presented, as is a brief discussion of an emerging risk identified through review of EM footage in regards to appropriate bycatch handling practices.

1. INTRODUCTION

Technological advances provide increased opportunities and tools for data collection. This technology can range from CCTV in ports to observe offloads, satellite monitoring of vessels to record vessel position, course and speed, electronic reporting and catch data submission, and on board video monitoring of fishing operations. As an emerging technology in fisheries data collection, electronic monitoring (EM) is able to provide timely, reliable, independent data, providing fisheries managers and other parties with improved capacity to make well-informed management decisions.

Electronic monitoring consists of a sensor system linked to a closed video or photographic system that can be used to view fishing activity. The EM system generally consists of a

control centre connected to an array of peripheral components including CCTV cameras, a GPS or Automatic Identification System (AIS) receiver, gear activity sensors, and a communications transceiver. The sensors transmit real-time positions and record when a change in fishing behaviour occurs, while the camera and sensor system do not allow external or manual inputs, or manipulation of data. Footage is stored on a hard drive and sent to the provider for analysis.

The Australian Fisheries Management Authority (AFMA) collects a range of data to aid in the assessment of fish stocks, assessment of the impacts on fishing on the environment, and to monitor compliance. Electronic monitoring was introduced in 2010 to boats operating in discrete areas of the Gillnet Hook and Trap (GHAT) Fishery, which forms part of the Southern and Eastern Scalefish and Shark Fishery (SESSF). Following this, it was introduced to nearly all fishing vessels the remainder of the longline (including automatic longline) and gillnet sectors of the GHAT, and two further Australian Commonwealth fisheries, the Eastern Tuna and Billfish Fishery (ETBF), and the Western Tuna and Billfish Fishery (WTBF), in July 2015.

Australia uses EM primarily as a logbook verification tool, to improve the quality of information provided by fishing vessels. Depending on placement, cameras may allow for the accurate recording and identification of bycatch of protected species. The ability of EM to detect rare events, such as protected species interactions, is particularly valuable in allowing Australia to verify the reporting of interactions with protected species. Additionally, EM footage may be used to verify the appropriate use of bycatch mitigation devices, such as tori lines. Australia uses EM footage to determine the presence or absence of mitigation devices concerning interaction events.

2. AUSTRALIA'S ELECTRONIC MONITORING PROGRAM

In three Commonwealth fisheries, time-stamped video, sensor and GPS EM data are recorded and stored on a hard drive during all setting and hauling operations. Raw EM data are provided to AFMA for analysis. Analysis includes logbook verification of catch data (including bycatch and protected species). Vessels are provided with regular feedback on their performance on these measures, and the operation and maintenance of the EM system (e.g. camera obstruction and cleaning). In instances where catches are recorded in the log but not in the EM data, a process exists for modifying camera views or changing deck handling practices to improve the field of view of cameras. In addition to logbook verification, EM is also used to verify the deployment of seabird mitigation devices in longline fisheries.

2.1. Eastern Tuna and Billfish Fishery and Western Tuna and Billfish Fishery

The ETBF operates in the Australian Fishing Zone from Cape York in Queensland to the South Australian – Victorian border, and includes waters around Tasmania. It can also operate on the high seas area of the Western and Central Pacific Fisheries Commission, though fishing outside of the Australian Fishing Zone (AFZ) has been very low in recent years. The WTBF covers the sea area west from the tip of Cape York in Queensland, around Western Australia, to the border between Victoria and South Australia. Fishing occurs in both the AFZ and adjacent high seas. All target species are managed under a Total Allowable Commercial Catch (TACC). The fishery is subject to limited entry, zoning, spatial closures, bycatch provisions and gear restrictions.

Compulsory EM coverage was introduced to the Australian pelagic longline fleet from July 2015, and the routine deployment of at-sea observers for fishing within the Australian EEZ ceased. Fishers in the ETBF and WTBF are required to install an EM system on their vessel if they operate for more than 30 days per season in either fishery. A total of 39 vessels, making up 100 per cent of active vessels in the ETBF and WTBF, are fitted with an EM system as of June 2017.

A review undertaken eight months after the full EM coverage was introduced indicated that logbook reporting of seabird and marine mammal interactions showed a pronounced increase (Larcombe et al., 2016). Logbook reporting of discard species increased, while retained catch reporting remained relatively consistent, with variations in reporting of retained species attributable to other factors. In general, the aft camera view of the vessels' setting operations was shown to be reliable for the monitoring of the use of tori-lines, ensuring they were employed and streamers were visible. However it was not possible to determine whether the lines were correctly deployed in accordance with AFMA's regulations and requirements, for example measuring aerial extent.

The ETBF complements its EM data through administering a size monitoring program, which collects data each year on individual sizes (weights) of retained species in the fishery, data which are also critical to both size structured stock assessment models used to assess these species and to the ETBF harvest strategy. The size monitoring program started in 1997/98 and has typically collected size information on 80-90 per cent of the landed catch, spread across the fishery and through each year. Other biological data can be collected in the fishery, when needed, by observers and/or dedicated research projects.

2.2 Southern and Eastern Scalefish and Shark Fishery (Gillnet Hook and Trap Sector)

The SESSF extends south from Fraser Island in southern Queensland, around Tasmania, to Cape Leeuwin in southern Western Australia. The fishery is managed under a quota system limiting the amount of take, with a quota limit setting the commercial TAC. The gillnet sector of the GHAT Fishery extends from the New South Wales/Victorian border westward to the South Australian/Western Australian border, including the waters around Tasmania, from the low water mark to the extent of the AFZ. Fishers using gillnets for 50 or more days per season are required to install an EM system on their vessel.

The longline sector of the GHAT Fishery incorporates the gillnet region described above, where shark hook fishing is allowed. Scalefish hook fishing is allowed in additional regions, extending north up the east coast to waters off southern Queensland (south of Sandy Cape) and New South Wales from approximately the 4000 m depth contour (60-80 nm from the coast) to the extent of the AFZ. The longline fishery includes automatic longline, bottom longline, and dropline methods. Fishers fishing with automatic longline for 50 days or greater, or manual longline for 100 days or more per season, are required to install an EM system on their vessel.

A total of 37 seven vessels in the GHAT are fitted with an EM system as of June 2017. This fishery contains specific management areas that are considered high risk for interactions between fishers and Australian sea lions (*Neophoca cinerea*), a threatened species with low trigger limits for management responses to interactions. Australia's approach to managing fishery areas containing this high risk protected species is risk based. While the remainder of the GHAT is subject to 10 per cent review of all catch, fishing undertaken in Australian Sea

Lion Management zones is subject to 100 per cent review for threatened species interactions.

From 1 July 2017, observers were redeployed in the gillnet and automatic longline sectors of the GHAT after a two year absence. The observers collect biological data complementary to information collected by EM systems that are currently better captured at-sea rather than through port sampling methods (e.g. length frequencies and otoliths). Levels of renewed observer coverage are at approximately five per cent, a function of the specific focus of their data collection.

3. EMERGING CHALLENGES: BYCATCH TREATMENT

The introduction of EM into Commonwealth fisheries allowed AFMA to establish that inappropriate handling of bycatch species was a previously unidentified issue on a small number of Commonwealth fishing vessels. While the species most at risk of mishandling appeared to be sharks and rays, the use of EM systems allows for compliance with animal handling requirements to be monitored. In response to the emerging risk, AFMA developed a fisher education program and published a Bycatch Handling and Treatment Guide (the guide) which outlines six guiding principles (AFMA, 2016, see attached). The guide also provides examples of conduct considered mistreatment, and further resources for fishers to familiarise themselves with best practice handling.

Fishers are responsible for handling bycatch species appropriately to maximise the chance of their survival. Mishandling bycatch species can significantly reduce their chances of survival and have long-term impacts on the sustainability of the species. Fishers are expected to familiarise themselves with the bycatch handling and treatment principles to minimise the risk of breaching bycatch handling and treatment obligations, as described in the conditions of their fishing concession. Fishers that are identified as non-compliant with the mishandling principles may be subject to compliance action based on EM footage.

4. REFERENCES

AFMA, 2016. Bycatch Handling: AFMA Bycatch Handling and Treatment Guide 2016/17. Australian Fisheries Management Authority, Canberra, March 2017. Available at: http://www.afma.gov.au/wp-content/uploads/2017/03/AFMA-Bycatch-Handling-and-Treatment-Guide_-2016-17_Public-Doc_FINAL.pdf

Larcombe J, Noriega R, and Timmiss T, 2016. Catch reporting under E-Monitoring in the Australian Pacific longline fishery. ABARES, Canberra, July 2016. CC BY 3.0.