Report on Electronic Monitoring System (EMS) Trials

Chinese Taipei

1. Introduction

To manage fisheries operations and collect verified scientific data, the regional fisheries management organizations (RFMOs) have adopted requirements for observer coverage. As a member, we have been making efforts to meet the required observer coverage rate in each RFMOs. Over the years, however, the difficulty of deploying human observer onboard our longline fishing vessels on which observer placement is challenging remains unsolved: the limited working space, long trips and long working hours continue to present great challenges to achieve the required observer coverage rate. As a result, the newly introduced electronic monitoring system (EMS) provides a promising resolution. We consider that the EMS is able to collect operational and scientific data for longline fishing vessels on which observer placement is challenging, and has great potential to replace human observers.

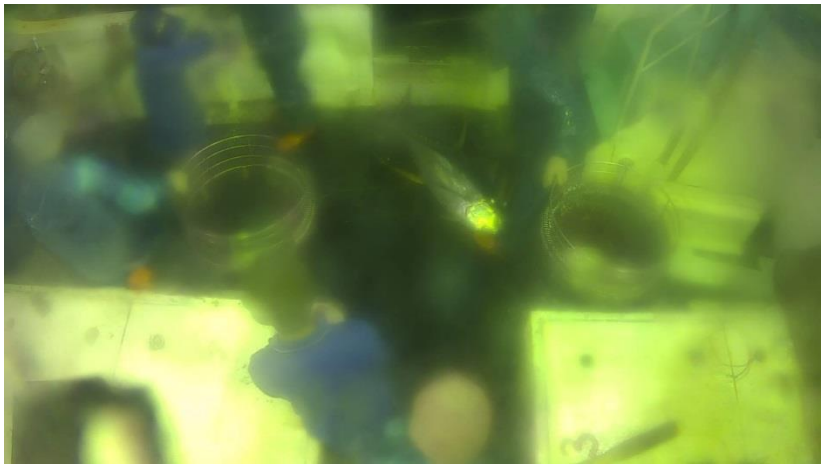
2. Trials and Recommendations

Since 2015, workshops on EMS development and implementation have been held in Taiwan, and the arrangements for EMS trials and researches have also commenced. To date, 7 fishing vessels have been participating in the trial and 7 trial trips have been arranged successively. As the objective of our national EMS trial focuses on its potential to replace human observers, 6 of the trials are accompanied by designated fisheries observers. The pictures or video footages collected by EMS will be reviewed by experienced observers, and then transformed into observer data. The observer data based on the reviewed information are then cross-checked with those completed by on-board observers. Among the 7 trips, the data from 3 trips had completed reviewing, and the rest of the trips are either

ongoing or undergoing the data reviewing process. In the future, our EMS trial project intends to install EMS on the longline fishing vessels on which observer placement is challenging.

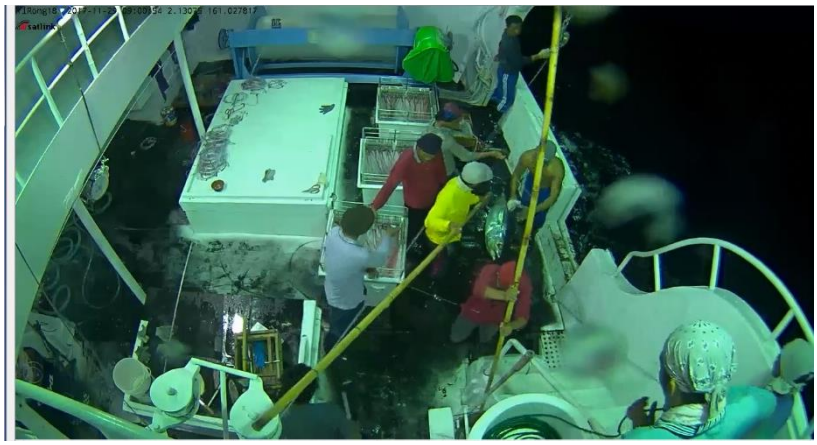
The result of the trials shows that EMS saves human resources, overcomes the space constraints and copes with high-risk working environments for human observers. To operate in conjunction with well-developed or appropriate image/video identification software and species identification software, it is expected that the efficiency of vessel monitoring and operational data collection can be further enhanced. Meanwhile, we would like to note that to avoid incompatible power supply and the likely machine breakdown, the installation process of EMS shall be carefully conducted. In terms of data quality, the sea conditions and lens maintenance have considerable impact on the quality of EM data, as part of our footages or images cannot be identified due to adverse weather conditions. Finally, a regular team consists of experienced observers would be beneficial to accelerate and coordinate the identification process.

Picture 1. Camera view on the deck (daytime): clear

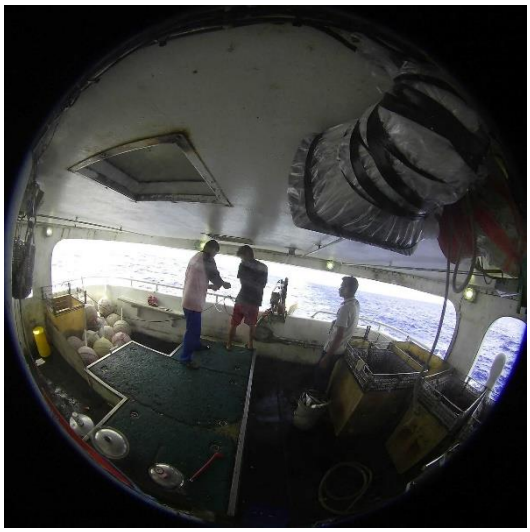


Picture 2. Camera view on the deck (nighttime): blurred due to weather conditions at sea

Picture 3. Camera view from the stack (nighttime): Blurred due to weather conditions at sea



Picture 4. Camera view from the stack (nighttime): clear



Picture 5. Fisheye Camera view toward the stern (daytime): clear

There are other issues that our national trials are yet to clarify, such as hardware durability, cost of EMS operation, equipment and maintenance, and personal privacy of the crew members etc. To tackle with the above issues, relevant regulations and standards are to be developed, and more EMS trials should be conducted as well.

3. Discussion

We highly values the potential of EMS, and will continue the trial projects to better understand its operation. Overall, the EMS is not a monitoring tool as well-developed and mature as the vessel monitoring system (VMS), yet it is a promising resolution for longline fishing vessels on which observer placement is challenging. EMS Trial projects will continue to be arranged and we will keep sharing our experience on observer-related resolutions.