

Pilot Activity to Assist the Implementation of an Electronic Monitoring System on Seychelles Fishing Vessels

Danielle Jupiter¹, Miguel A. Herrera², Julio Morón², Roy Clarisse³, Philippe Michaud³, Elisa Socrate³, Maitane Grande², Julien Million⁴, José L. Sánchez Lizaso¹

1 University of Alicante; 2 OPAGAC; 3 Seychelles Fishing Authority, 4 FAO

INTRODUCTION

Observer programmes are intended to assist individual countries or RFMOs to achieve their science and compliance objectives and are a key component of effective fisheries management. There are, however, several difficulties involved in placing observers on fishing vessels and data collected by observers are not verifiable. Such challenges make it difficult to ensure that levels of coverage on most fleets are adequate and may reduce the usefulness of the data they obtain for management purposes. This makes it necessary to find cost-effective alternatives. Electronic Monitoring Systems (EMS) are being tested as an alternative and/ or a complement to human observers on-board. EMS were developed to monitor fishing activities, with a view to improve both the quality of scientific data collected and facilitate regional arrangements for Monitoring, Control and Surveillance (MCS). E-Monitoring may be more transparent, accountable and cost effective than on board observers, and can be used to increase observer coverage or in situations where boarding of fishing vessels by observers is compromised, or not feasible at all.

PURSE SEINERS



Figure 1 & 2: Intertuna Tres and Galerna III, two purse seiners flagged on Seychelles participating in the Pilot Activity.

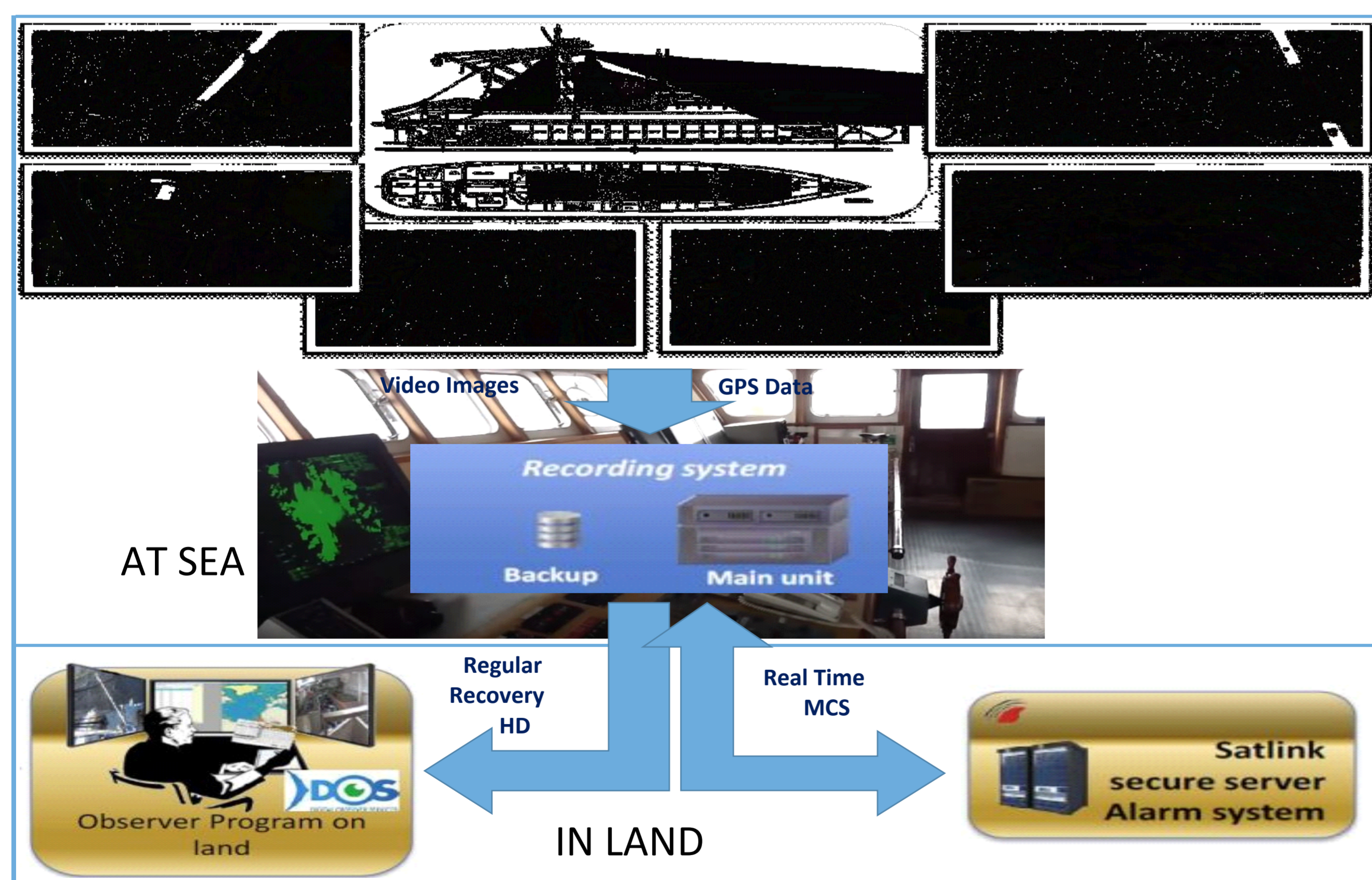


Figure 3: Flowchart showing the way in which the Electronic Monitoring System works:

- 1. Video Recording** (top): Layout and area covered by the cameras fitted on the purse seiner *Intertuna Tres* and images obtained from some of them, including upper deck, lower deck, and area around the vessel;
- 2. Data Recording Unit** (middle): E-Monitoring data recorded onboard, which includes video images and GPS data stored in a data recording unit installed on the vessel bridge;
- 3. Control & Data Analysis** (bottom): E-Monitoring data stored in hard drives are collected at the end of a vessel trip and e-monitoring data analyzed in land by 'dry' observers (SFA).

EMS PILOT STUDY IN SEYCHELLES

The system is based on the recording of VMS data and video footage from several cameras installed on the vessels to cover all fishing, loading and unloading and other associated operations (*Figure 3*). This Pilot activity is carried out by the Seychelles Fishing Authority (SFA) with assistance from OPAGAC and with the support of the Common Oceans ABNJ Tuna Project, implemented by FAO and funded by the GEF. Its main objective is to determine if that EMS can be used as a tool to monitor compliance and to collect scientific data in a transparent, efficient, and cost-effective way and complement human. The Pilot has involved installation of electronic monitoring equipment on two Seychelles flagged purse seiners (*Figure 1: Intertuna Tres and Figure 2: Galerna III*), and of two e-Monitoring data analysis units at SFA, and training of relevant SFA staff and vessel crew on e-Monitoring. The approach taken here differs slightly from previous studies, which put the focus on comparing data collected by scientific observers against estimates obtained from EMS installed on the same boats. Aware of the risk that estimates from scientific observers are not fully accurate, this Pilot will also compare catch estimates from EMS against those obtained from sampling and oversampling of selected wells, in order to ensure that total catches, species and size composition obtained from EMS are reasonably precise and unbiased.



Figure 4: Oversampling on port of purse seiner Galerna III catches. Oversampling data of selected sets will be compared with Electronic monitoring data