## European experiences on the use of Remote Electronic Monitoring

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## **Abstract**

Within the last decade, Remote Electronic Monitoring (REM) has emerged as a cost-efficient supplement to the existing expensive observer programmes documenting catches in commercial fisheries. An REM system consists of various activity sensors and a closed circuit television (CCTV) network to record catches without requiring extra personnel on-board. With the introduction of the landing obligation of the European Common Fisheries Policy, fishers are required to report all catches of quota regulated species. REM could thus become an appropriate instrument to monitor fisheries. However, despite its advantages over the existing monitoring methods, REM uptake has remained low in European fisheries and the approach is highly disputed. The objective of this review is to describe the state of play of REM in fisheries and to analyse the insights gained about the potentials of this technology for management, control and science. Since 2008, 11 REM trials were conducted in Europe, published in 19 publically available studies. These European experiences are also discussed in the global context of current REM use in other regions of the world. The review points out that REM allows for a substantially higher sampling coverage compared to current monitoring programs at equivalent costs. In addition, the technology offers a precise estimation of fishing effort, through high-resolution spatio-temporal data in combination with accurate recording of fishing activity. REM incentivises better compliance and discard reduction, and approaches to overcome the reluctance against on-board cameras are discussed. The article concludes that REM is a powerful and cost-efficient tool for monitoring fisheries.

## **Keywords:**

Landing Obligation, catch documentation, discard monitoring, Fully Documented Fisheries, video-based monitoring

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