

# Global Uptake of Electronic Monitoring



*Electronic Monitoring (EM) refers to the use of closed-circuit television (CCTV) on board fishing vessels, integrated with a geolocation device (GPS) and sensors that detect specific vessel actions, such as setting or hauling of fishing gear that trigger video recording.*

EM is a closed system, meaning the camera, GPS, and sensor data cannot be manipulated. The data collected by the EM system is recorded on either external hard drives or stored in the cloud and transmitted to the relevant flag state authorities for review.



## Where in the world is EM used?

Canada first introduced EM to support a pot limit to control fishing effort in the Dungeness crab fishery. However, both managers and fishers agreed that for this management arrangement to be effective it requires robust on-water enforcement. As a result, an industry-led and funded EM program was introduced in the fishery following a three-year pilot phase.

Today, EM systems are installed on approximately 1,500 vessels through fully implemented programs worldwide. This is a small fraction of the estimated 400,000 industrial and semi-industrial fishing vessels globally. One key reason is that EM largely remains a regulatory-driven tool, and regulatory changes in fisheries are often, by design, long processes which require the support of many different stakeholders. Generally, EM has been implemented in fisheries where the costs of the existing monitoring programs, including the impacts of limited accountability, outweigh the costs of an EM program.

For example, EM has been introduced in fisheries in the United States of America, Australia, New Zealand where:

- unreported discards are driving additional management measures to constrain fishing effort to protect the health of choke stocks.
- interactions with endangered, threatened, or protected (ETP) species pose risks to those species and could constrain or shut down a fishery, and
- existing human observer programs are high-cost and logistically challenging.



# Which fisheries and fishing gears can EM be used in?

EM has been trialled and implemented in numerous fisheries worldwide (Figure 1). To date, EM implementation has been most successful in serial fisheries, such as those using pelagic longline and pot/trap fishing gear, for example, tuna fisheries in Australia, USA, Fiji, Federated States of Micronesia, that use pelagic longline gear. Several trap/pot fisheries have also successfully used EM, for example crab fisheries in Canada and the USA.

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EM has also proven to be very successful in multispecies bottom and midwater fisheries using trawl and fixed fishing gears. For example, EM is being successfully used on 20 vessels in New Zealand’s inshore trawl fisheries to monitor interactions with Maui and Hector’s dolphins, which are classified as critically endangered and endangered, respectively. Similarly, in the USA, EM is used to provide critical data in the Bering Sea/ Aleutian Islands pollock and non-pollock trawl fisheries, the Gulf of Alaska rockfish and the Alaskan small boat fixed gear fishery.

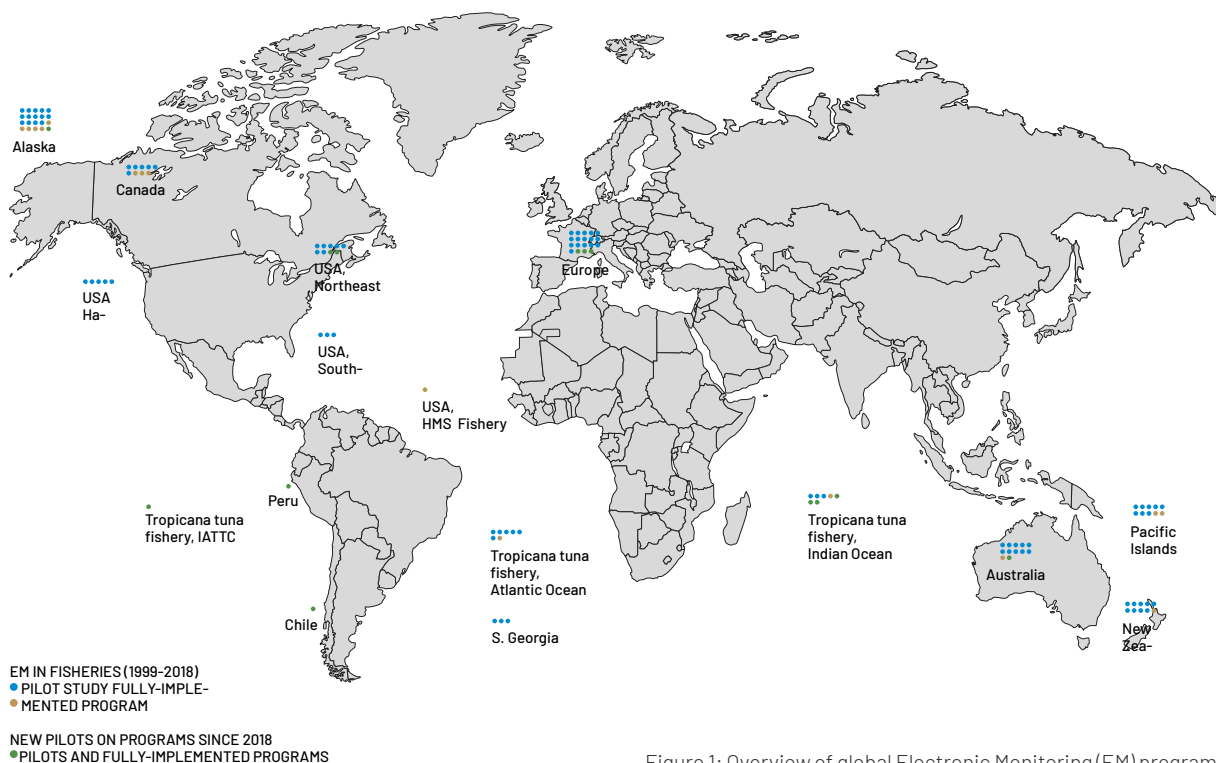


Figure 1: Overview of global Electronic Monitoring (EM) programs and trials from 1999-2018, along with selected new programs and pilots from 2018-2020. Source: Michelin and Zimring (2020), Catalyzing the Growth of Electronic Monitoring in Fisheries: Progress Update, August 2020.



# Delving deeper: EM in Europe

## Electronic Monitoring in European Union Fisheries

EU fisheries first trialled EM in 2008 in response to the continuous cycle of overfishing and restrictive management in many North Sea fisheries. EM trials included:

- 2008-2009** ● Denmark North Sea Program, 6 vessels
- 2010** ● Denmark North Sea and Skagerrak Program, 23 vessels  
● Scotland Cod Program, 6 to 27 vessels
- 2013-2015** ● England North Sea Program, 6 to 21 vessels
- 2011** ● Denmark Harbor Porpoise Bycatch Program, 9 vessels
- 2011-2014** ● Germany Baltic Sea Cod Program, 2 vessels
- 2011-2015** ● Netherlands Cod Program, 12 vessels
- 2013-2015** ● Denmark North Sea, Skagerrak, and Baltic Program, 14 vessels
- 2014** ● England North Sea Cod, 12 vessels
- 2015** ● Southwest England/North Sea Multispecies Program, 3 vessels  
● Southwest England Program, 9 vessels
- 2022** ● Cyprus tuna transshipment, 2 vessels.

The Nature  
Conservancy

