

The Crown Estate Electronic Monitoring System



ANNUAL REPORT 2019



1. Introduction

Since 1993 The Crown Estate Commissioners have required all vessels dredging Crown Estate minerals to be fitted with an Electronic Monitoring System (EMS) which automatically records the date, time, and location of all dredging activities. EMS data are encoded for security purposes and analysed to ensure compliance with Marine Licence conditions.

EMS records are analysed and processed by The Crown Estate as landowner and shared with the Regulators (the Marine Management Organisation and Welsh Government). It is the responsibility of the Regulators to undertake any compliance enforcement action under legislation.

EMS data play an important role in research and assisting in the targeting of annual monitoring studies undertaken by licensees. It also assists in shaping policy for future dredging initiatives and activities.

In 2018 an EMS upgrade commenced, which updated the hardware and software used to collect dredging track information on vessels. This was completed in 2019.

The Crown Estate regularly publishes on its website information relating to aggregates dredging, this includes the annual Area of Seabed Dredged reports, and the twice-yearly Licensed Dredge Area Charts and Active Dredge Zone Charts.

2. System Description

Over the last several years The Crown Estate has carried out an exhaustive investigation into options for a replacement of the 2005 version EMS. In 2017 The Crown Estate appointed a company called Foreshore Technology as the provider of a new, third-generation EMS.

The new EMS represents a significant change in approach to the monitoring of dredging activity. It entails the use of a standardised system across all vessels and provides a 'one-stop shop' approach where all installation, maintenance and breakdown repair services are delivered by the EMS provider.

Key features of the new EMS

- A robust, secure black box-based system, which utilises a simple, stable operating system
- An independent GPS to track vessel position
- An independent acoustic sensor to indicate vessel dredging status
- An optional display unit which gives vessel crew key information
- A data log recording frequency of 10 seconds (3 times more frequent than at present)
- A dedicated helpdesk and system repair facility
- A web portal where all recorded information can be accessed by authorised personnel

The new system is sufficiently future proof that further capabilities and inputs may be added during its lifetime, under the guidance and agreement of an EMS Management Group, formed of The Crown Estate, its managing agent and representatives of the dredging industry.

Focus will now move to the development of a system variant suitable for temporary use. This system will utilise much of the same technology as the regular system but be deployable at short notice and therefore be suitable for dredgers undertaking one-off projects such as beach nourishment contracts. Trials of this system have begun, with implementation scheduled for 2020.

3. Summary of 2019 EMS Data

a. Dredging Vessels

During 2019

- An average of 26 vessels per month operated on Crown Estate Production Agreement Areas.
- A maximum of 28 and a minimum of 24 vessels operated in any one month.

b. Reported EMS Breakdowns

Licensees are required to notify The Crown Estate immediately in the event of a breakdown of any kind of a vessel's EMS and give details of remedial measures being undertaken.

Subject to satisfactory alternative recording procedures, the licensee has 72 hours to rectify a fault, after which no dredging is permitted unless specific authorisation has been received from The Crown Estate.

There were 2 major reported EMS breakdowns during 2019. The breakdowns were rectified satisfactorily and full details of dredging activity during the period of missing data were supplied to The Crown Estate.

c. Dredging Activity

In 2019, there were a total of 14,835 hours of recorded dredging activity which is equivalent to approximately 45,000 km of dredge track*.

Dredging vessels were present on The Crown Estate Production Agreements for approximately 7 % of the total time available throughout the year†.

* Based on an average dredging speed of 3 km/hr

† Available time based on an average of 26 vessels multiplied by the total number of hours in a year

d. Time Gaps

EMS time gaps are classed as any periods when vessels are at sea and capable of dredging but the EMS did not log data, usually due to system errors or breakdowns. It is established whether a vessel was at sea primarily using Automatic Identification System (AIS) data. AIS is a separate vessel tracking system required by law. Periods when vessels are alongside in port are discounted.

Using the above methodology, in 2019 345 hours of time gaps were investigated. In each case vessel movements and dredging locations were monitored using alternative records such as outputs from other vessel tracking systems, deck logs, legally binding Master's statements and AIS track. In the majority of cases no dredging was found to have taken place during time gaps.

No evidence of unauthorised dredging during time gaps was found during 2019.

e. Out of Area/Out of Zone Dredging

In 2019 there were no confirmed incidents of dredging outside of a Production Agreement Area.

In 2019 there were no confirmed incidents of dredging outside of an active zone (but within an overall Production Agreement Area).

4. Conclusions

During 2019:

- Recorded dredging hours totalled 14,835 hours, compared to the 10-year annual average of 14,997
- There was a total of 345 hours of time gaps compared to the 10-year annual average of 1,426 hours
- There was no unauthorised dredging, compared to the 10-year annual average of 1 hour and 15 minutes
- The percentage of licensed seabed dredged has remained low at 9.7 %, compared to the 10-year annual average of 10.1 %
- A successful EMS upgrade was completed for the regular fleet, utilising more modern hardware and software to ensure the system remains robust and fit for purpose