



Business and Regulatory Impact Assessment (BRIA) on Remote Electronic Monitoring (REM)

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Remote Electronic Monitoring (REM) relates to the use of imagery, sensors, and Global Positioning System (GPS) to independently monitor fishing operations, effort, and/or catch. In this paper we explore the impact of such a proposal as it specifically applies to two fleet segments – pelagic trawl and scallop dredge vessels.

This assessment is being undertaken alongside a public consultation on the usage of REM, and further information will be sought there regarding information on the fleet segments listed above, and a generalised overview of REM itself. The consultation also asks for views regarding broader rollout of REM to additional fleet segments in the future. However, given this is still at a very early stage of development a separate BRIA has not yet been produced.

As outlined in the below, government intervention has been deemed appropriate primarily to improve monitoring of fishing vessels at sea – themselves in breach of existing fisheries legislation, but which can be difficult to detect using existing enforcement methods. The introduction of the REM requirement also has additional scientific and reputational benefits – both of which can be explored in further detail in the below and in the public consultation document.

The specific costs of REM systems, regardless of fishing fleet segment, are difficult to quantify, as no specific cost assessment has been carried out as applicable to the Scottish fleet, beyond the breakdown indicated in the below documents¹. With that in mind, we have presented as much information as possible, asking in the public consultation whether respondents foresee any barriers to vessels meeting the costs of REM systems themselves.

Regarding businesses which will be impacted by this policy, the most obvious businesses will be the fishing vessels themselves; but also the supply chain associated with REM hardware and software, and the Scottish Government itself. As explored in more detail below, competition considerations vary between fleet segments owing to differences in how the systems are procured and paid for.

¹ [Technical guidelines and specifications for the implementation of Remote Electronic Monitoring \(REM\) in EU fisheries](#)

Partial Business and Regulatory Impact Assessment

Title of Proposal

Remote Electronic Monitoring (REM) on Pelagic Vessels in Scottish Waters

Purpose and intended effect

Background

As announced as part of the Future Fisheries Management (FFM) Strategy², the Scottish Government intends to introduce legislation making it a legal requirement that all pelagic vessels in Scottish waters will have a fully operational Remote Electronic Monitoring (REM) system installed on board. Pelagic vessels for the purposes of this policy are defined as: *defined as Refrigerated Sea Water /Chilled Sea Water (RSW/CSW) and freezer vessels, over 12 metres, fishing for small pelagics and blue whiting*. The Scottish Government has a similar commitment in place to make REM mandatory on board scallop vessels (a programme of work is already underway on a voluntary basis) and we have also committed to considering appropriate and proportionate REM for other segments of the fleet (e.g. large whitefish and mixed whitefish/Nephrops trawlers) as part of our Future Catching Policy³.

REM as a monitoring and data collection tool was first trialled in Scotland during 2008. At the time it was utilised as part of a large scale monitoring scheme in the Scottish fishing industry during the time that the Cod Recovery Plan (CRP) (2009-2016) was in place, offering a Fully Documented Fishery (FDF) monitoring scheme. Vessels took REM on-board in return for incentives, namely additional cod quota and an increased days at sea allowance. The FDF scheme enabled Marine Scotland officials to build up a considerable level of expertise and experience of operating an REM scheme successfully, and provided a clear demonstration that REM can work as an effective enforcement tool. It also acted as the catalyst for comprehensive development of REM technology in a scientific context⁴, with ongoing research into best practice for extracting accurate scientific data from CCTV footage, developing methodologies for the assessment of fish and shellfish stocks using REM, and investment and development of ML software which can deliver automated image recognition of fish caught as they are processed on on-board conveyor belt systems.

Objective

To deliver confidence and accountability in the activities of fishing vessels at sea, to ensure compliance with key legislation such as the landing obligation and to enhance our understanding and knowledge of pelagic fisheries and stocks.

² [Future fisheries: management strategy - 2020 to 2030 - gov.scot \(www.gov.scot\)](http://www.gov.scot)

³ [Future fisheries management: policy intent paper - gov.scot \(www.gov.scot\)](http://www.gov.scot)

⁴ [Scottish science applications of Remote Electronic Monitoring](http://www.gov.scot)

There is a growing call from retailers and consumers around the need for sustainability in fishing activities and a growing call for fishers to demonstrate that the activities they are undertaking align with sustainability and transparency principles. Although the Scottish Government has well established compliance and scientific programmes, the remote nature of sea fishing means that there are limits in our ability to monitor activity at sea and deliver the confidence which is increasingly being sought. The introduction of the landing obligation, or 'discard ban' has also brought additional challenges, and there is a need to enhance our current capabilities to demonstrate that discarding is not taking place. Pelagic vessels have a significant catching capacity and evidence gathered as part of our existing compliance programme has demonstrated the significant levels of waste that can occur in this fishery for those vessels not complying with the landing obligation rules.

The consequence of not pursuing this policy is that we will not be able to deliver the optimum level of confidence and accountability in the activities of fishing vessels at sea. It would also be more challenging to enhance our understanding, knowledge and the marketability of pelagic fisheries and stocks.

From a compliance perspective, a REM compliant fleet will allow for monitoring of what quantity and species of fish have been:

- Caught
- Retained
- Landed

Where currently this is derived from Elog declarations, landing declarations and production figures (as well as surveillance and boardings), REM will serve an additional tool to verify the information submitted where required. REM systems will also be capable of proving discarding if there is a significant difference between these three observations.

REM offers the opportunity to significantly enhance the quantity of scientific data currently collected as well as collect new types of data. In particular it will allow for comprehensive data collection on catches of the pelagic fleet as opposed to landings which is the only catch component currently sampled. Examples of the types of data that could be collected include;

- **Individual fish lengths and weights**
- **Weight of fish caught**
- **Catch composition and BMS**
- **Bycatch of listed species**
- **Acoustic data**

Consumers are increasingly requesting products which are sustainable and want confidence that the products they are buying meet this requirement. In turn, this often drives retailers to seek assurance of the sustainability of products they are sourcing. Environmental groups are also clear that the entire supply chain must be transparent, accountable and auditable – a sentiment shared by retailers who have noted specifically that activities at sea must be properly monitored. A number of large retailers have all made various promising commitments that any fish products they sell are sustainable. Sustainability goes further than merely setting fishing limits at sustainable levels – it requires us to demonstrate compliance with

those fishing limits and to demonstrate that practices are accountable and not wasteful.

Going further, research^{5 6 7} conducted in this area has shown:

- Demand for sustainably caught seafood increases around the world.
- Traceability to a sustainable source remains high on consumers' and buyers agenda.
- Credible eco-labelling is one of the most effective tools to communicate sustainability to consumers.
- Recognition of MSC eco-label now at a 33% average - up from 25% in 2010.

It is therefore evident that increased public consciousness regarding the sustainability of seafood products has driven retailers to make explicit pledges concerning the products they stock. Given increased public consciousness more generally regarding sustainability and environmental impacts, this is only likely to further increase industrial demand for products which are caught responsibly.

A REM compliant fleet will go a significant way to addressing this demand – demonstrating to consumers that from the very point of origin, pelagic stocks are harvested sustainably and in keeping with the landing obligation and wider technical conservation legislation.

Rationale for Government intervention

This is a situation of asymmetric information which can lead to market failure. Current landing monitoring methods might result in misreporting of catch which negatively influences the sustainable management of the fishery. Introducing REM devices would ensure a symmetric information flow, support a sustainable management of the stocks and compliance with current legislation.

In addition, there are a number of positive externalities that could be gained by wider implementation of REM. In particular, raising Scotland's reputation as pursuing more sustainable practices, through more rigorous monitoring of bycatch. And raising Scotland's reputation in technological adoption by incorporating wider use of REM within current business practices. Both of these should support, and potentially boost, Scotland's standing in the seafood industry.

With the above noted objectives in mind, it should be noted that government intervention via legislation appears the most likely means of delivery. Historically, attempts have been made to engage with the industry to introduce REM on a voluntary basis, but there has been widespread reluctance to participate. As part of the ongoing consultation work, Marine Scotland will be taking on board feedback from industry on this point, as their expectations and hopeful participation as the policy gains shape, will be most beneficial.

⁵ [New survey sees seafood consumers placing sustainability before price and brand \(seafoodsource.com\)](https://seafoodsource.com)

⁶ [World Fishing & Aquaculture | Increased momentum behind sustainable seafood](#)

⁷ [The latest sustainable seafood consumer trends in Asia Pacific, 2020 | Marine Stewardship Council \(msc.org\)](https://www.msc.org)

Consultation

Within Government

Consultation has been undertaken with colleagues within Marine Scotland, including policy (Sea Fisheries), Compliance, and Marine Scotland Science.

We have also engaged with DEFRA and other Devolved Administration departments on overlapping areas of interest.

Public Consultation

A full public consultation will take place from 15th March 2022.

Business

Views on REM were sought as part of the National Discussion Paper on Future Fisheries Management, which was published in March 2019.

Engagement with industry representatives through the Fisheries Management and Conservation Group (FMAC)

Options

Option 1: Do nothing

Option 1 is the 'Do nothing' option; this is the baseline scenario. Under this option, the proposed REM requirement would not be rolled out to pelagic vessels in Scottish waters. Accordingly, no additional management measures would be required.

Option 2: Introduction of legislative requirement for REM on applicable vessels

Option 2 involves introducing a legislative REM requirement. This can vary in terms of the system spec – i.e. just sensors or cameras and sensors, but the option is broadly the same.

Sectors and groups affected

The following sectors have been identified as groups who will be affected by the proposal:

- Scottish pelagic fishing industry
- Wider UK and International pelagic fishing industry operating in Scottish waters
- REM suppliers
- REM maintainers/repairers
- Internal Scottish Government – Marine Scotland Compliance and Science
- Courts – if criminal enforcement/ legal challenges are pursued.

Benefits

Option 1: Do nothing

No change would be required from an industry perspective, with no additional benefits being incurred.

Option 2: Introduction of legislative requirement for REM on applicable vessels

Introduction of a REM compliant fleet will principally allow for full documentation of catches, presenting a variety of benefits covering two main areas:

1) REM technology offers a range of scientific benefits, by supporting and enhancing existing fisheries-dependent data collection methods such as independent fishery observers, vessel monitoring systems (VMS) and logbooks.

REM technologies can improve the timeliness, quality, cost-effectiveness and accessibility of scientific data to ensure the data utilised for fisheries management decision making is of high quality. If used on a large scale, and as more tools are developed and implemented such as Artificial Intelligence (AI), REM data streams can be integrated with existing data collection programmes to support stock assessments, with data derived for one purpose often having utility to support other scientific research interests.

Consequently, this should help deliver benefits in relation to fisheries stock management, which in turn can help lead to more responsible, traceable and sustainable fishing. Scientific involvement in developing and deploying REM technology is therefore of significant importance.

Implementing REM systems that generate information on a vessel's location, fishing effort, gear, and most importantly from a fully documented fisheries management perspective, the types and quantities of retained or discarded catch. Therefore, the implementation of REM of fishing vessels could, in the future, ease the reporting burden and duplication of effort on behalf of fishers and fisheries compliance organisations.

2) REM can enhance our abilities to demonstrate accountability in our fishing practices, to deliver confidence that fishers are complying with the rules and regulations which are in place, and to supplement our existing enforcement tools used as part of our world-class compliance system. REM can also be used to prove compliance with existing regulations.

Fisheries, fishers and both fishery-dependent and fishery-independent data collection have all been severely impacted by the COVID-19 pandemic. In many fisheries this has resulted in a combination of sampling programmes being suspended, and when operational, only a very limited observer availability due to quarantine rules. Globally however REM programmes have been only marginally impacted demonstrating the resilience of remote monitoring in its ability to provide

continued uninterrupted data collection regardless of external extenuating factors. Therefore, these benefits highlight the advantages of having multiple monitoring methods to ensure an evidence base for continued fisheries management in unprecedented situations.

REM can also act as a deterrent to any non-compliant activity, such as discarding or high grading, and can create a level playing field for all vessels that use it within a fishery as long as rules are applied fairly and consistently and where there is appropriate levels of monitoring and analysis.

Summary of Benefits

Option 1: Do nothing	Option 2: REM
No additional costs for the fishing industry	Scientific benefits including enhanced sustainability of fishing practices
	Fishing accountability and increased consumer confidence Improved reputation for Scottish catch, potential improvement in competitiveness of the product
	Reduction in time and effort of reporting
	Potential reduction in discarding/unlawful practises due to increased compliance – leading to improved health of fish stocks, in turn improving catch yields and future economic gains.

Costs

Option 1: Do nothing

This option is not predicted to create any additional costs to the sectors and groups outlined above.

However, failure to introduce REM among the fleet would mean that existing challenges around enforcing compliance with existing legislation (particularly the landing obligation) would continue.

In 2019 pelagic species represented 60 per cent by tonnage (234 thousand tonnes) and just over one third of value (£195 million) of the total landings by Scottish vessels. Over ten years 2010-2019, the industry has grown as the tonnage of pelagic landings increased by nearly one quarter (24 per cent) with real terms value rising by 29 per cent.⁸

By doing nothing, the product could become less attractive to consumers and potentially lose market share or price premium if competitors prove the sustainability and compliance of their fisheries.

Option 2: Introduction of legislative requirement for REM on applicable vessels

The exact costs for REM will vary depending on the system specifications put in place, the different costs charged by commercial operators, and the number of cameras and / or sensors which are deployed.

Systems will vary across fleet segments. Moreover, exactly how data is stored and transferred for analysis can affect the final cost of a REM system.

Item	Estimated costs for pelagic vessels for a camera system (based on link)
Estimated system cost	£6,300 - £9,000
Estimated installation cost	£1,000- £3,000
Estimated Annual running cost	£700 - £2,500

Data Transfer costs

Costs will depend on system specification.

Payment of these costs

Costs can be broadly split into three categories: 1) the initial upfront cost of hardware (system and installation), 2) the cost of data transfer and system software / licences, 3) the ongoing maintenance of hardware and replacement kit. It should be noted that these are estimates only.

In addition to the varying costs of REM systems, different parts of the fishing fleet will have different financial capabilities, and the affordability of REM systems will vary from vessel to vessel and business to business. It may be appropriate in some cases for public funding to be provided to support the upfront purchase cost

⁸ [Scottish Sea Fisheries Statistics 2019 - gov.scot \(www.gov.scot\)](http://www.gov.scot/Scottish-Sea-Fisheries-Statistics-2019)

of REM equipment (for example, Marine Scotland is providing £1.5 million under the Modernisation of the Inshore Fleet Programme), and possibly in the form of grant funding via the Marine Fund Scotland. Any grant funding provided would be for Scottish vessels only although foreign vessels may wish to engage with their relevant authorities regarding potential funding avenues which may be available.

The UK pelagic (>40m) fleet has been consistently profitable⁹, with 27 large-scale trawlers making a net profit of around €140 million in 2017. The estimated net profit margin increased significantly from 36% in 2016¹⁰ to 50% in 2017 as weight of landings increased and costs decreased¹¹. As the majority of the UK fleet consists of Scottish vessels, it is expected that the cost of installing and maintaining the REM device (see above) will not detrimentally impact the profits of the subjected businesses.

Enforcement costs

As explored above, it should be stressed that this policy does not primarily seek to punish people breaking the rules. It should be emphasised that if fishers are adhering to the landing obligation and other rules and regulations, then a REM system will not identify any breaches of legislation. This policy will ensure existing Compliance efforts are supplemented with REM data, but otherwise will continue as at present.

To supplement existing Marine Scotland Compliance efforts, the REM system will be able to detect non-compliance (while it's very presence may deter in the first instance), and deal with it appropriately and proportionately if it occurs

This would also be applied to foreign vessels fishing in Scottish waters. These foreign vessels, if at any time they are present in Scottish waters, would be required to provide all of the fishing trip's data for analysis – otherwise these vessels could behave exactly as desired once having left Scottish waters.

Public Sector costs:

The decision to introduce a legislative requirement for REM, would result in costs being incurred by the public sector in the following areas:

- Preparation and delivery of this policy proposal
- Preparation of Statutory Instruments
- Development of voluntary instruments
- Software and licensing costs
- Compliance and enforcement – including additional staff
- Promotion of public understanding
- Regulatory and advisory costs associated with licensing decisions

⁹ No data available specifically for the Scottish fleet

¹⁰ [Techno-economic performance review of selected fishing fleets in Europe](#)

¹¹ [JRC Publications Repository - Scientific, Technical and Economic Committee for Fisheries \(STECF\): The 2019 Annual Economic Report on the EU Fishing Fleet \(STECF 19-06\) \(europa.eu\)](#)

Summary of Costs

Option 1: Do nothing	Option 2: REM
No additional costs for the fishing industry or public purse	Cost of REM systems – broken down to up front and ongoing costs (regardless of who pays)
	Data transfer costs – final system dependent
	Increased enforcement costs within Marine Scotland

Scottish Firms Impact Test

This section will be informed by evidence gathered during the consultation phase.

Businesses affected include some small and micro-sized firms. Additional costs imposed by the classification of the site have the potential to fall on small businesses.

Competition Assessment

Introduction of REM across the board (the level playing field) will ensure Scottish pelagic boats are not out-competed by non-Scottish vessels not having the same requirement.

With increased reputation of Scottish pelagic seafood by being demonstrably within fishing legislation (and therefore more in line with public demand), this will make the competitiveness of these products more favourable.

In 2019 pelagic species represented 60% by tonnage and just over a third by value (£195 million) of total landings by Scottish vessels. Most of these landings are landed by 19 vessels (2018 count) employing over 200 people¹². Mackerel was the most valuable specie landed accounting for 27% of the total value of Scottish landings. Pelagic species also make up the majority of landings abroad by Scottish vessels at 95% by tonnage. The UK over 40 metre pelagic trawler fleet of 27 vessels has been consistently profitable, with the net profit margin in 2017 estimated at 51%.

Pelagic fisheries are seasonal - in 2019, the first catching season peaked during the first six weeks of the year, then started again late summer. The fishery has a consistently high quota uptake for both the West Coast and North Sea. For example, in 2019 the uptake exceeded 100% for both mackerel and herring.

It should also be noted that should Scottish vessels receive support for the up-front costs, they would have an advantage over affected non-Scottish vessels.

¹² 2016 figure

Competition Filter Questions

Will the proposal directly limit the number or range of suppliers? e.g. will it award exclusive rights to a supplier or create closed procurement or licensing programmes?

No. Any supplier with the capabilities to meet the technical requirements of the REM system will be able to do so.

Will the proposal indirectly limit the number or range of suppliers? e.g. will it raise costs to smaller entrants relative to larger existing suppliers?

Limited / No Impact. New entrants to the pelagic fishing sector already face significant pressures to entry – not least because of the costs associated with commissioning and building a new pelagic vessel from scratch. This requirement will not make access for new entrants more difficult.

For suppliers, scale should not affect the competitiveness of larger suppliers over smaller. If the modest technical requirements can be met, this will be the only consideration.

Will the proposal limit the ability of suppliers to compete? e.g. will it reduce the channels suppliers can use or geographic area they can operate in?

No. Introduction of REM will not directly affect firms' route to market or the geographical markets they can sell into. Since the proposal covers the whole fleet it assures a level playing field as long as the uptake of the REM devices does not affect the costs and profitability of any vessel disproportionately.

Will the proposal reduce suppliers' incentives to compete vigorously? e.g. will it encourage or enable the exchange of information on prices, costs, sales or outputs between suppliers?

No. Introduction of REM is not expected to reduce suppliers' incentives to compete vigorously.

Test run of business forms

As the policy is still under development, no business forms have yet been produced.

Legal Aid Impact Test

It is not expected that the REM requirement will have any impact on the current level of use that an individual makes to access justice through legal aid or on the possible expenditure from the legal aid fund as any legal/authorisation decision impacted by the proposed legislation will largely affect businesses rather than individuals.

Enforcement, sanctions and monitoring

As described in more detail above, this policy will be a method of enforcing compliance with existing fisheries legislation. Penalties will be applied in instances of non-compliance in line with existing offences.

Marine Scotland will remain the relevant competent authority with responsibility for scientific studies, compliance, monitoring and enforcement of the requirement to have REM on board.

Implementation and delivery plan

Consultation timescales

Launch consultation, running March 2022-June 2022

Preparation of draft legislation

Incorporating feedback from the consultation, legislation to be drafted April-July 2022.

Anticipating a lead in time for implementation it is roughly estimated that the requirement will come in to force in 2023.

Summary and recommendation

Option 2 introduction of legislative requirement for REM on applicable vessels is the preferred option.

As explored in detail above, this policy is fully supportive of the strategic context and outcomes of the Future Fisheries Management strategy¹³, namely:

- Overarching principles of sustainability – the policy will deliver full accountability of catch from the pelagic fishing sector, allowing for long term sustainability and growth.
- Environmental outcomes – further from the above, the policy will allow for more accurate calculation of catching limits, based on certainty that the amount of fish being extracted is known and accurate.
- Economic outcomes – thorough management of this fishery will ensure it remains productive and resilient, allowing for long term economic growth.
- Ensuring high level compliance safeguards the health of fish stocks which in turn reflects in potential long term growth in the industry. Additionally, signalling sustainable fishing practices adds value to the landed product and maintains international competitiveness.
- Social outcomes – further from above, as the policy supports the sustainable growth of this fishery, the wider benefits that flow from this industry will be realised in the communities the workforce and processing facilities are drawn from.

¹³ [Future fisheries: management strategy - 2020 to 2030 - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/future-fisheries-management-strategy-2020-to-2030/pages/13/)

Declaration and publication

I have read the Business and Regulatory Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs. I am satisfied that business impact has been assessed with the support of businesses in Scotland.

Signed:

Allan Gibb

Date: 13th December 2021

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Partial Business and Regulatory Impact Assessment

Title of Proposal

Remote Electronic Monitoring (“**REM**”) on vessels deploying scallop dredge gear in the Scottish zone.

Purpose and intended effect

Background

In accordance with The Regulation of Scallop Fishing (Scotland) Order 2017¹⁴ (“**The 2017 Order**”), around 20 British registered fishing vessels which dredge for King Scallops have financed the on-board installation of an REM system so that they can deploy 10 dredges per side in the 6-12 nautical mile area within the Scottish zone.

Marine Scotland uses the REM data to validate that the number of dredges deployed in inshore waters do not exceed statutory limits by use of:

- (i) spatial data (i.e. where and when a vessel is fishing); and
- (ii) imagery from cameras (to monitor the number of dredges deployed).

These scallop dredge vessels already installed with REM comprised 11-13% of the scallop dredge vessels active in the Scottish zone in 2018-2020.

Marine Scotland’s Fisheries Management Strategy¹⁵ 2020-2030 (“**FFM**”) sets out our policy initiatives to protect the environment, and support a strong, sustainable and resilient fishing industry. The FFM Strategy has set out a clear direction of travel regarding the use of vessel REM in Scotland. Publications have explained that legislation will be laid in the Scottish Parliament to make REM on scallop dredge vessels mandatory. Commitments to introduce REM requirements for other sectors of the fishing industry have also been made. Establishing a ‘level playing field’ for all vessels fishing alongside each other is important in our REM policy development.

In 2020, Scallop dredge vessels operational in the Scottish zone in 2020 comprised 69% Scottish registered vessels, 30% other UK registered vessels and 1% non-UK other. These proportions are generally fairly consistent from 2018-2020 (Fig. 1). Vessels deploying scallop dredge gear in the Scottish zone can be differentiated into larger nomadic boats that fish around the UK coast and smaller boats that fish in more localised areas.

¹⁴ [The Regulation of Scallop Fishing \(Scotland\) Order 2017 \(legislation.gov.uk\)](https://www.legislation.gov.uk)

¹⁵ [Future fisheries: management strategy - 2020 to 2030 - gov.scot \(www.gov.scot\)](https://www.gov.scot)

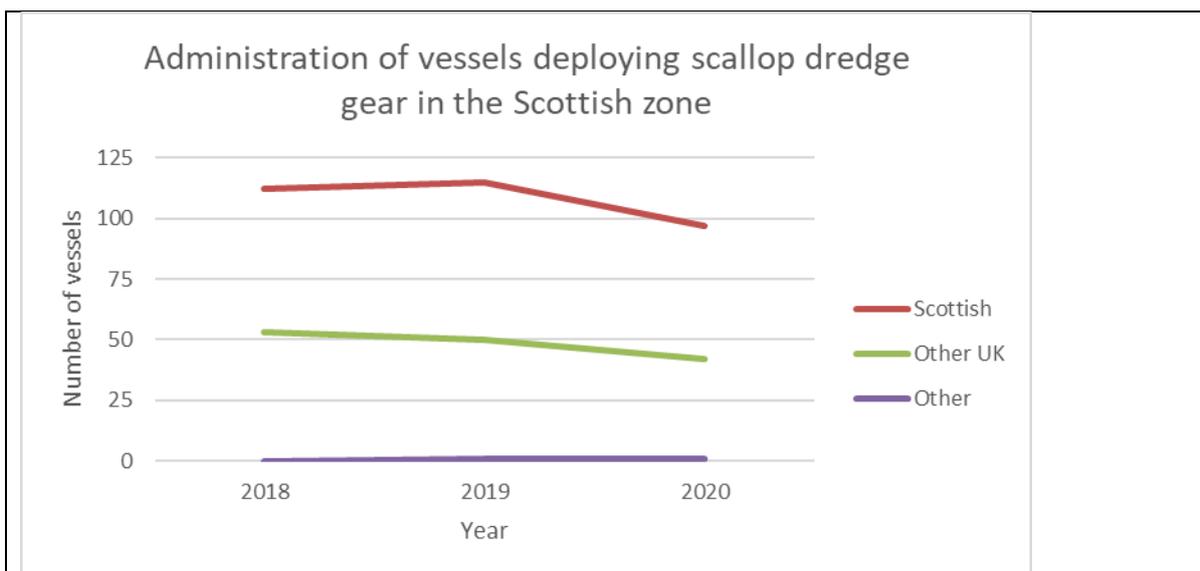


Figure 1. Number of vessels fishing in the Scottish zone by nationality.

The UK had 264 active scallop dredge vessels¹⁶ in 2019 with an average estimated real operating profit¹⁷ of approximately £47.2 thousand per vessel.¹⁸ The estimated real operating profit for the fleet was therefore £12.5 million in 2019 which was a steep increase from 2018, despite a 10% decrease in the number of vessels in the fleet in the year.

In 2019 the average real net profit¹⁹ for UK Scallop dredge was £14,000 per under 15 metre vessel, the net profit margin for the full sector being 7%. For the over 15 metre fleet it was 6%.

Landings by Scottish registered vessels represented 66% of total UK scallop and queen scallop landings by value in 2019.

Objective

The objective is to introduce measures that prohibit any vessel deploying scallop dredge gear in the Scottish zone unless a fully functional REM device is installed on-board. The REM data required will be able to be reviewed remotely by Marine Scotland and will include positional data, winch sensor data, electronic monitoring images and video.

Rationale for Government intervention

The Scottish Government is committed to the sustainable development of the fishing industry and using appropriate REM in tailored and workable frameworks which deliver benefits to fishing fleets, help improve fisheries management and policies, help demonstrate compliance, and also aid interaction and planning within

¹⁶ Note that the main species caught are scallops, queen scallops and cockles.

<https://www.seafish.org/document/?id=3a58469b-530d-4ba3-a465-2b287767eb8d>

¹⁷ Operating profit: the difference between total income and operating costs.

¹⁸ [Fleet Enquiry Tool | Tableau Public | Seafish](#)

¹⁹ Net profit: the result of subtracting finance costs, depreciation and interest costs from operating profit.

our shared marine waters. There are significant fisheries management and compliance benefits from having REM on board scallop dredge vessels.

There is public interest and support for REM to be deployed across the whole of the scallop dredge fleet. There is also strong support from within the scallop dredge sector that appropriate REM for scallop dredge vessels should include camera(s), GPS receivers and winch sensors. There is recognition that the technology genuinely enhances the ability to demonstrate accountability in fishing practices and, to deliver confidence that scallop fishers are complying with rules and regulations.

UK and EU vessels with a length of 12 meters or greater are required to have a functioning satellite tracker (“**VMS**”) installed on-board²⁰ which transmits the boats’ positional data to a satellite and then sends it to a national or international body that monitors vessels’ position, course, speed and other parameters. In general VMS pings are received every 2 hours.

In comparison, Article 6 of the 2017 Order requires REM systems to report vessel positions at 10 second intervals. The availability of REM data for all scallop dredge vessels in Scottish waters will therefore improve the 2 hourly VMS reports and provide spatially rich data of all fishing activity. Such data is valuable in a range of circumstances, in particular it will provide a more detailed profile of Scotland’s scallop fishery, to aid and improve management measures. In addition it will assist fishers in factually demonstrating their activities during marine planning processes and has the potential to generate market benefits through the likes of accreditation schemes.

REM can also be used to deliver confidence that fishers are complying with the rules and regulations which are in place, and supplement existing enforcement tools. The presence of a fishing vessel in a Marine Protected Area (“**MPA**”) does not mean a law has been broken as vessels may transit through areas. Different MPAs carry different restrictions so what is illegal in one, might not be in another. Existing legislation²¹²²²³²⁴²⁵²⁶²⁷ does prohibit the deployment or use of scallop dredge gear within specified locations, either for all or part of the year within the specified location. There are limited exemptions to these prohibitions, for example gear can be deployed for research purposes or safety reasons.

Marine Scotland receives reports from the public and other sources in relation to suspected illegal activity, including allegations of scallop dredging in MPAs or other closed areas²⁸.

²⁰ [Retained Implementing Regulation No 404/2011](#)

²¹ [The Inshore Fishing \(Prohibited Methods of Fishing\) \(Luce Bay\) Order 2015 \(legislation.gov.uk\)](#)

²² [The Inshore Fishing \(Prohibition of Fishing and Fishing Methods\) \(Scotland\) Order 2015 \(legislation.gov.uk\)](#)

²³ [The Loch Sunart to the Sound of Jura Marine Conservation Order 2016 \(legislation.gov.uk\)](#)

²⁴ [The South Arran Marine Conservation Order 2015 \(legislation.gov.uk\)](#)

²⁵ [The Wester Ross Marine Conservation Order 2016 \(legislation.gov.uk\)](#)

²⁶ [The Loch Carron Marine Conservation Order 2019 \(legislation.gov.uk\)](#)

²⁷ [The Red Rocks and Longay Urgent Marine Conservation Order 2021 \(legislation.gov.uk\)](#)

²⁸ [Marine and fisheries compliance: reports of illegal fishing in marine protected areas - 26 May 2020 to 30 May 2021 - gov.scot \(www.gov.scot\)](#)

The reports received help build up a picture of what might be happening and inform the tasking of coastal, marine and air assets, providing a mechanism to gather further intelligence. However, it is important to note that the Reports are received from a range of sources and may range from very accurate to completely inaccurate. They do not prove wrongdoing or suggest guilt, they are a report of what someone thinks they have seen. They may contain errors including the misidentification of vessels; misidentification of activity; and, inaccurate details as to exact location of the activity being witnessed.

Marine Scotland Compliance fully investigates all reports of suspected illegal fishing, including suspected illegal scallop dredging, to the extent that the evidence allows and appropriate action is taken where necessary.

The Scottish MPA network currently covers approximately 37% of the seas around Scotland. The 2021 Cooperation Agreement²⁹ with the Scottish Green Party builds on the FFM Strategy and aims to achieve a step change in marine protection. The Agreement includes commitments to:

- Implement management for our network of MPAs and protection for some of our most vulnerable Priority Marine Features outside of MPAs;
- Introduce Highly Protected Marine Areas (“**HPMAs**”) covering at least 10% of our waters by 2026;

REM systems which establish when and what fishing activity is taking place deliver confidence in compliance with rules and regulations e.g. MPA regulations. In relation to scallop dredge REM, sensors are mounted on the vessel to capture location and activity data, whilst the imagery data from the cameras is used:

- a) to validate that the number of dredges deployed at sea do not exceed statutory limits; and,
- b) to function as a corroborative tool to prove (or disprove) fishing activity on location (thereby ensuring that MPA legislation / spatial restrictions are respected).

Making REM mandatory on scallop dredge vessels operating in the Scottish zone contributes to the Scottish Government’s National Performance Framework Outcome ‘We value, enjoy, protect and enhance our environment’.

Consultation

Within Government

Consultation has been undertaken with colleagues from Marine Scotland Compliance, Marine Scotland Science, Sea Fisheries Division and Marine Planning & Policy.

²⁹ [Scottish Government and Scottish Green Party: draft shared policy programme - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/draft-shared-policy-programme/pages/29.aspx)

We have been engaging with DEFRA and other UK Fisheries Administrations on vessel tracking and REM.

Public Consultation

A full public consultation is being held, running from 15th March 2022 until 7th June 2022. The consultation documentation includes this partial BRIA.

Business

Views on REM were sought as part of the National Discussion Paper on Future Fisheries Management³⁰, which was published in March 2019.

The Scottish Scallop Sector Working Group (“**SSSWG**”), established in 2019, acts as a consultative forum to inform future policy development and discuss national issues facing the sector, including the roll out of REM amongst the fleet. The group broadly represents scallop interests in Scotland - membership (with dredge, dive and processing interests) includes fishing association representatives, frontline fishers/businesses and Regional Inshore Fisheries Groups.

Ongoing engagement with a range of stakeholders, both within and outwith the fishing industry, suggests that there is interest and support for REM requirements to be applied consistently amongst the scallop dredge fleet, principally to promote sustainable and responsible fishing by demonstrating that gear limits and spatial fishing restrictions are respected.

Options

Option 1: Do nothing

This would maintain the current monitoring arrangements for the Scottish scallop fishery.

Option 2: Introduce measures to prohibit any vessel deploying scallop dredge gear in the Scottish zone unless a fully functional REM device is installed on-board.

Sectors and groups affected

The following sectors have been identified groups who will be affected by the proposal:

- Scottish scallop fishing industry (vessels that do not already have REM installed)
- Wider UK and International scallop fishing industry operating in Scottish waters
- REM suppliers
- REM engineers (i.e. those that install and maintain REM systems)

³⁰ [Future fisheries management - discussion paper: analysis - gov.scot \(www.gov.scot\)](https://www.gov.scot/resources/documents/2019/03/20190319_Future_Fisheries_Management_Discussion_Paper_Analysis.pdf)

- Scottish Government, in particular Marine Scotland Compliance who will be responsible for reviewing REM data.
- Courts – if criminal enforcement/ legal challenges are pursued.
- Processors and consumers

Benefits

Option 1: Do nothing

Benefits

Fishing vessels would be able to continue fishing for scallops in the Scottish zone as per the existing Scottish fisheries legislation.

Costs

Marine Scotland will likely continue to receive reports from the public and other sources in relation to suspected illegal scallop dredging in MPAs or other closed areas. The reports will continue to inform the tasking of coastal, marine and air assets to gather further intelligence.

In recent years markets and consumers have become increasingly focussed on sustainability, traceability and accountability. By maintaining the current monitoring arrangements, the product could become less attractive to consumers and could eventually result in lower prices or the loss of access to markets.

Option 2: Introduce measures to prohibit any vessel deploying scallop dredge gear in the Scottish zone unless a fully functional REM device is installed on-board.

Benefits

At a basic level, the REM technology on scallop dredge vessels operating in the Scottish zone will:

- provide high spatial resolution positional data to identify where/when a vessel is fishing;
- provide video footage to verify the number of dredges deployed and to act as a corroborative tool in determining when fishing activity is being carried out; and,
- provide the duration (time taken and distance covered) of tows.

Data that identifies where/when and for how long a vessel is fishing will provide a more detailed profile of Scotland's scallop fishery, to aid and improve management measures, to act as a tool to detect any non-compliant activity and help sustain this important industry for coastal communities.

Scotland's inshore marine environment is increasingly in demand, by a variety of sectors who want to utilise the resource. REM data will help address the challenges this poses by enhancing the fisheries evidence base and enabling

improved interaction between the fishing industry and other marine users, for example in a marine planning context.

In addition, the data can be used by fishers to effectively demonstrate their activities during marine planning processes or to derive market benefits through the likes of accreditation schemes, which can in turn improve the competitiveness of the product.

The risk based review of camera footage validates that a vessel is not exceeding prescribed dredge numbers in inshore waters and is also a corroborative tool to prove (or disprove) fishing activity on location, providing confidence and accountability in the operations.

Costs

Voluntary REM installations on currently active Scottish registered scallop dredge vessels have been funded under Marine Scotland's Modernisation of the Inshore Fleet Programme. The public consultation seeks views on future funding of REM for Scottish registered vessels, including maintenance/repair costs.

Owners of non-Scottish vessels that wish to continue to operate in the Scottish zone would need to procure an REM unit that worked within the parameters set or consider eligibility for funding opportunities with their relevant authorities.

Item	Approximate Cost
Hardware system	£4,000 - £6,000
Annual License	£300 - £400
Installation	£500 - £1600
Sim card costs	£4.00 - £7.00 per month
Annual Maintenance	£0 - £300 (excluding labour) (likely to increase over time)
Annual cost (first year)	£4,850 - £8,400
Annual cost (thereafter)	£350 - £800

The decision to introduce a legislative requirement for REM, would result in costs being incurred by the public sector in the following areas:

- Preparation and delivery of this policy proposal
- Preparation of Statutory Instruments
- Development of voluntary instruments
- Software and licensing costs
- Compliance and enforcement – including additional staff
- Promotion of public understanding
- Regulatory and advisory costs associated with licensing decisions

Option	Total benefit per annum:	Total cost per annum: - economic, environmental, social
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	- economic, environmental, social	- policy and administrative
1	Fishing vessels would be able to continue fishing for scallops in the Scottish zone as per the existing Scottish fisheries legislation.	<p>Marine Scotland will likely continue to receive reports from the public and other sources in relation to suspected illegal scallop dredging in areas where it is not permitted. The reports will inform the tasking of coastal, marine and air assets to gather further intelligence.</p> <p>The product could become less attractive to consumers and could eventually result in lower prices or the loss of access to markets which are increasingly focussed on sustainability, traceability and accountability.</p>

Option	Total benefit per annum: - economic, environmental, social	Total cost per annum: - economic, environmental, social - policy and administrative
2	The benefits of REM include: improving confidence and accountability of our fleets and their products (thus enhancing not only individual business's reputation but that of Scotland's fishing industry as a whole); addressing compliance issues; helping enhance the fisheries evidence base; and, enabling improved interaction between the fishing industry and other marine users.	<p>All scallop dredge vessels that do not already have a fully functional REM system on-board that meets the requirements set will need to procure a suitable system.. Estimated cost (first year) is £4,850 to £8,400 per boat.</p> <p>Annual costs thereafter are estimated to be £350 - £800.</p> <p>The public consultation seeks views on future funding of REM for Scottish registered vessels, including maintenance/repair costs.</p> <p>Public sector costs are anticipated to reduce after introduction of an SSI but there will be ongoing costs to Marine Scotland due to the increase in REM data received and its analysis.</p>

Scottish Firms Impact Test

Membership of the SSSWG includes fishing and processing businesses. Input from the SSSWG has been vital in developing the policy and have been fully consulted throughout. A number of Scottish businesses have already chosen to have an REM system installed on their vessel/s.

The public consultation and associated engagement with industry will inform future development.

Competition Assessment

These measures will apply to all fishing boats carrying and deploying scallop dredge gear in the Scottish zone and are therefore unlikely to have any major impact on the ability of operators to compete against each other.

The legislation (as with the 2017 Scallop Order) will establish the parameters within which the REM system should operate. In recent years companies developing REM solutions to meet the challenges of monitoring diverse global fisheries have increased. In general, REM systems can be customizable and configurable to meet the diverse requirements of individual fisheries.

Test run of business forms

Marine Scotland does not currently anticipate that new business forms will be introduced.

Legal Aid Impact Test

No impact is currently anticipated. To be reviewed.

Enforcement, sanctions and monitoring

Marine Scotland Compliance is responsible for the monitoring and enforcement of marine and fishing laws. Where a breach of fisheries regulations has been detected, it will be reported as appropriate to the prosecuting authorities. This can result in a fine of up to £50,000 on summary conviction, or a fine on conviction on indictment.

Implementation and delivery plan

The new scallop dredge vessel monitoring measures will be introduced through secondary legislation. Marine Scotland will monitor the impact of the new management measures and consider any practical or unforeseen consequences should they arise.

Summary and recommendation

Marine Scotland recommends Option 2. Introducing new measures that prohibit any vessel deploying scallop dredge gear in the Scottish zone unless a fully functional REM device is installed on-board.

• Summary costs and benefits table

Option	Total benefit per annum: - economic, environmental, social	Total cost per annum: - economic, environmental, social - policy and administrative
2	The benefits of REM include: improving	All scallop dredge vessels that do not already have a fully functional REM

	<p>confidence and accountability of our fleets and their products (thus enhancing not only individual business's reputation but that of Scotland's fishing industry as a whole); addressing compliance issues; helping enhance the fisheries evidence base; and, enabling improved interaction between the fishing industry and other marine users.</p>	<p>system on-board that meets the requirements set will need to procure a suitable system.. Estimated cost (first year) is £4,850 to £8,400 per boat.</p> <p>Annual costs thereafter are estimated to be £350 - £800.</p> <p>The public consultation seeks views on future funding of REM for Scottish registered vessels, including maintenance/repair costs.</p> <p>Public sector costs are anticipated to reduce after introduction of an SSI but there will be ongoing costs to Marine Scotland due to the increase in REM data received and its analysis.</p>
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Declaration and publication

I have read the Business and Regulatory Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs. I am satisfied that business impact has been assessed with the support of businesses in Scotland.

Signed:

Allan Gibb

Date: 13th December 2021

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