

**Improving inshore fisheries data:
Consultation on requiring electronic
tracking and monitoring technology on
under 12 metre commercial fishing
vessels**

**Partial Business and Regulatory Impact
Assessment (BRIA)**

Marine Directorate, Scottish Government

1. Title of Proposal

This is a partial BRIA for the consultation seeking views on the proposal for all fishing vessels under 12 metres in length, transiting or fishing in Scottish waters (or Scottish vessels wherever they fish), to have an installed and operational tracking device (also known as i-VMS). The consultation also seeks views on the limited use of Remote Electronic Monitoring (REM) systems on under 12 metre fishing vessels for additional scientific and compliance benefits.

2. Purpose and Intended Effect

2.1 Background

Currently, tracking devices that transmit or store fishing vessel locations while at sea are generally limited to larger vessels. Since 2012 it has been a requirement for all UK fishing vessels which are 12 metres and over in length to be fitted with a Vessel Monitoring System (VMS).¹ VMS transmits vessel positional data to a satellite which then sends it to the relevant fisheries administration who monitor position, course, speed and other parameters. The data generated is used for monitoring and managing fishing activity, protecting the marine environment, and providing evidence of important fishing areas for marine planning purposes.

In Scotland, most vessels of less than 12 metres in length (most of whom fish predominantly within inshore waters) do not carry an on-board tracking device. Therefore, our understanding of their activities in Scottish waters (or of Scottish vessels operating out with our waters) is limited. Some information can be derived about location of catch through statutory returns (logbooks, FISH1 forms and sales notes), but this is gathered retrospectively, subject to delay and there is no means of verifying its accuracy. During development of our Fisheries Management Strategy (FM Strategy) it was clear that there is general support for enhanced monitoring of these vessels, to gather data on activity, and inform fisheries management and decision making in relation to marine planning.²

The Scottish Government proposes to extend the use of vessel tracking devices to the under 12 metre fishing fleet, to improve knowledge of where fishing is taking place and the value of our inshore waters for fishing. For the vast majority of our fleet, we anticipate that a basic tracking device will be sufficient. These devices record the location, speed and heading of a vessel using a secure, tamper resistant system. It is envisaged that data will be transmitted using mobile telephone

¹ See Article 9 of retained [Council Regulation \(EC\) No 1224/2009](#)

² [Scotland's Fisheries Management Strategy 2020-2030](#)

technology (as opposed to the satellite technology used for VMS data) to simplify data handling and minimise costs. Where there is no signal, the device will store the data and transmit it when in range. Tracking devices for under 12 metre vessels cost less than VMS devices and use higher frequency reporting.

The Scottish Government is also committed to using more sophisticated technology known as Remote Electronic Monitoring (REM) on some vessels operating in Scottish waters.^{3,4} REM systems in fisheries use imagery, sensors and global positioning systems (GPS) to independently monitor operations at sea such as effort and or catch. The components of REM systems can differ depending on the fishing sector in which they are being used and do not necessarily need to include the use of cameras. The consultation also seeks views on the limited use of these inshore REM systems, as the Scottish Government considers that for some vessels less than 12 metres in length, this will deliver greater scientific and/or compliance benefits.

2.2 Objective

Sustainable management and development of our marine environment is at the heart of our National Marine Plan and our Blue Economy Vision.^{5,6} The National Marine Plan, regional marine planning, and our FM Strategy are key delivery mechanisms for our Blue Economy outcomes and will allow us to achieve our ambition for sustainable stewardship of Scotland's marine resources, consistent with our international commitments for the environment.

The FM Strategy sets out a programme of work from 2020 to 2030, delivering positive change and improved outcomes in the way Scotland's fisheries are managed. Its 12 point action plan aims to balance protection of the environment with encouraging an entrepreneurial, inclusive and sustainable economy where fishing is an attractive career choice.

A key strand of the FM Strategy is the inshore modernisation programme, which is rolling-out appropriate and proportionate on-board fishing vessel technology, including REM systems on scallop dredge vessels. This is playing a lead role in enhancing data gathering on inshore fishing. Enriching the evidence base will help inform future management decisions. Sound management will, in turn, create

³ [Ensuring Long Term Sustainability from Scotland's Marine Resources - Remote Electronic Monitoring \(REM\): Consultation \(www.gov.scot\)](#)

⁴ [REM consultation outcome report](#)

⁵ [Scotland's National Marine Plan - gov.scot \(www.gov.scot\)](#)

⁶ [Blue Economy Vision For Scotland](#)

sustainable fisheries long-term by improving understanding of the location, volume and value of fishing activity. This data will support and inform wider policies aimed at progressing Scotland's commitment to achieve Good Environmental Status for our seas.^{7,8}

2.3 Rationale for Government Intervention

The Scottish Government is committed to enhancing the monitoring of fishing activities in inshore waters by extending roll-out of appropriate and proportionate on-board electronic technology across that fleet segment. The rationale behind this varies from supporting sustainable fishing opportunities, to improving marine planning; and from improving the scientific evidence base, to safeguarding the reputation of marine products. Improved monitoring supports more efficient and effective management.

Currently the over 12 metre fleet is required to have VMS onboard, while the under 12 metre fleet is only required to complete FISH1 forms or logbooks to declare their fishing location, catch by weight and voyage dates. This disparity between electronic monitoring and relying on fishers themselves completing and submitting returns, means there is significantly less data available for the under 12 metre fleet. Yet, this segment makes up approximately 1,700 registered Scottish registered fishing vessels.⁹

Limited data means there is less information to support and inform sustainable management of the stocks. Without change, we jeopardise our ability to support policy development that will aid our responsibility to achieve Good Environmental Status for our seas. Additionally, it may lead to negative impacts on markets for Scottish seafood, damage vulnerable rural communities which rely on fishing and affect the general biodiversity and health of our diverse inshore waters.

Fishing businesses operating within our inshore waters are diverse and we want to ensure that the approach we take in rolling-out vessel tracking and inshore REM is proportionate, delivers tangible benefits and enhances the inshore fisheries evidence base.

It is critical that we consider simplicity of use and cost effectiveness for both regulator and user. While the majority of inshore fishing vessels are small family businesses deploying creels, this fleet also includes trawlers, dredgers, hand-liners, netters and hand divers. Therefore, the accompanying consultation proposes that a fully functional tracking device should be required on all licensed fishing vessels

⁷ [Marine strategy part three: UK programme of measures - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/marine-strategy-part-three-uk-programme-of-measures)

⁸ [Scotland's Marine Assessment 2020 | Scotland's Marine Assessment 2020](#)

⁹ [Scottish Sea Fisheries Statistics: 2021](#)

under 12 metres in length operating in Scottish waters and all Scottish fishing vessels wherever they are operating. In addition, views are being sought on the proposal to require more sophisticated REM systems (in addition to basic tracking devices) on some vessels for compliance and/or scientific purposes.

Undoubtedly, data generated by both vessel tracking and inshore REM will greatly improve the spatial picture of fishing activity in Scottish waters, to help inform the Scottish Government's science, compliance monitoring and policy development. This will have positive benefits in supporting the sustainable management of fish stocks, ensuring more effective compliance and supporting the inshore fleet in evidencing its sustainable credentials to access the best price and widest market opportunities.

The scientific data we hold about shellfish stocks, and knowledge of the amount of fishing gear in the water, varies widely and we wish to address that. Onboard electronic technology offers opportunities to improve this situation, allowing us to make better-informed, agile management decisions, vital to the future of the Scottish fishing industry and management of our shared marine resource.

The proposals in the consultation contribute to the Scottish Government's National Performance Framework Outcome 'We value, enjoy, protect and enhance our environment.'¹⁰

3. Consultation

3.1 Within Government

The Scottish Government will update this partial BRIA following the public consultation on the proposals presented. To date, the Scottish Government has discussed its proposals with the following internal groups during the development of the policy:

- Marine Economy & Communities Portfolio, Marine Directorate
- Marine Environment (Climate & Biodiversity) Portfolio, Marine Directorate
- Science, Evidence & Data Portfolio, Marine Directorate
- Operational Delivery Portfolio, Marine Directorate

The Scottish Government has been engaging with DEFRA and other UK Fisheries Administrations on vessel tracking and REM.

¹⁰ [National Performance Framework | National Performance Framework](#)

3.2 Public consultation

A 12-week public consultation will run from 14 August 2023 - 07 November 2023.

As part of the National Discussion on Future Fisheries Management there was strong support for enhanced inshore fisheries management by improving the evidence base on which decisions are made, including by using vessel tracking.¹¹

3.3 Business

The Scottish Government is committed to modernising the inshore fleet by ensuring that all commercial fishing vessels are equipped with an appropriate tracking device. Accomplishing this will afford appropriate protections and governance to our seas and the fishing businesses who operate within them, while allowing us to improve the evidence base on which we make decisions.

In order to inform our thinking, we are using learning from existing initiatives such as the Outer Hebrides Inshore Fisheries Pilot. We have also engaged with our Regional Inshore Fisheries Group (RIFG) network to outline stakeholder opinion on the use of vessel tracking devices and REM systems.

4. Options

Option 1 – Do nothing

We continue to encourage RIFG discussion on the use of vessel tracking and inshore REM with a view to encouraging voluntary uptake, as well as sharing the outputs from relevant existing projects, but take no further action at the current time at a national level.

Option 2 – Blanket requirement for vessel tracking devices across the commercial inshore fishing fleet

We could adopt a blanket approach to all inshore fishing vessels not currently in possession of a tracking device. This could utilise similar products to those being used in similar programmes in the rest of the UK designed for the fishing industry or capitalise on learning from initiatives such as our Outer Hebrides Inshore Fisheries Pilot, which has been trialling a lower cost tracker typically used in the haulage industry.

¹¹ [Future Fisheries Management : National Discussion Paper on Future of Fisheries Management in Scotland - 2019 : Analysis Report \(www.gov.scot\)](https://www.gov.scot/publications/future-fisheries-management-analysis-report-2019/pages/100/index.aspx)

It would be the intention of the Scottish Government to contribute to the cost of the first tracking device, subject to budgetary constraints. Costs of transmitting data and replacement of devices would be borne by the industry.

Option 3 – A tailored roll-out of vessel tracking and inshore REM systems across the commercial inshore fishing fleet

Option 3 is to extend our current approach of tailoring the tracking device or inshore REM system to the nature of the group of fishing vessels in question, as we have done in the Outer Hebrides Pilot and with the Scottish scallop dredge sector. This will be done, taking account of factors including:

- Catching power.
- Target species.
- Fishing method.
- Fishing location.

This approach would allow for a more efficient outcome by balancing monitoring requirements with the costs of the devices.

It would be the intention of the Scottish Government to contribute to the cost of the first electronic monitoring device, subject to budgetary constraints. Costs of transmitting data, and replacement of devices would be borne by the industry.

4.1 Sectors and groups affected

The proposals are anticipated to directly affect all Scottish fishing vessels under 12 metres in length that do not currently have an operational tracking device – approximately 1,700 vessels. In addition, the proposed approach would affect a small percentage of vessels in the under 12 metre fleet fishing in Scottish waters, that would be required to have an operational REM system. It will also affect vessels from other administrations that operate in Scottish waters.

4.2 Impacts

All commercial fishing vessels less than 12 metres in length will be impacted if required to have an appropriate vessel tracking or REM system on board. It would be the intention of the Scottish Government to contribute to the cost of the first electronic monitoring device. Costs of transmitting data, and replacement of devices would be borne by the industry.

In the long term, the availability of accurate and up-to-date data on fishing activity will allow for optimal fisheries management measures to be developed. This is expected to result in better outcomes for the environment and the economy.

4.3 Costs

Option 1 costs – Do nothing

- Spatial data and the evidence base to inform decision making regarding our inshore commercial fishing fleet would not improve.
- The absence of vessel tracking and inshore REM, in the long-term might negatively impact fishers' ability to evidence their business activities, making them less able to represent themselves in discussions alongside other marine uses (such as aquaculture, renewable energy and marine spatial planning).

Option 2 costs – Blanket requirement for vessel tracking devices across the commercial inshore fishing fleet

- There would be implicit purchase, installation and operating costs to any solution selected for blanket roll-out:
 - Equipment, installation and commissioning of the 'low cost tracking solution' being trialled in the Outer Hebrides Inshore Fisheries Pilot costs approximately £160 plus an annual communications charge associated with the multi network SIM that the system uses. This is expected to be within the lower bound of the expected cost range.
 - Details of the type of tracking devices approved for use in English waters are published online.¹² Initial costs range from £475 - £1300.
 - Installation costs will vary depending on time taken and rates charged by engineers. Tracking device installs are anticipated to take between 1 and 3 hours.
 - Ongoing running costs range from £8 – £15 per month.
- There would be increased administrative costs for the Scottish Government.
- The total annual cost across the entire under 12 metre fleet (*circa.* 1,700 vessels) to maintain and renew the systems, assuming an equipment lifespan of 10 years, is estimated to range between £191,000 - £529,000.
- The total cost to the Scottish Government of purchasing the systems is expected to range between £273,000 and £2,218,000.

¹² [List of i-VMS type approved devices for under 12 metre English vessels - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

Option 3 costs – A tailored rollout of vessel tracking and inshore REM systems across the commercial inshore fishing fleet

- We have already trialled a number of different tracking devices on Scottish inshore fishing vessels to improve our understanding of this approach and we know that any system we consider will have implicit equipment, installation and upkeep charges. As an example, the 'low-cost tracking solution' being trialled in the Outer Hebrides Inshore Fisheries Pilot costs approximately £160 plus an annual communications charge associated with the multi network SIM that the system uses.
- Details of approved i-VMS systems approved for use in English waters may also be suitable for some groups of fishers (see footnote 12).
- While we anticipate a simple tracking device will be sufficient for most inshore fishing vessels, we might consider the use of more comprehensive REM-type systems (with or without cameras) for some, based on assessment of risk:
 - Systems with cameras may cost in the region of £2,000 – £5,000.
 - Systems without cameras are likely to cost in the range of £1,000 – £2,000, and these would include higher resolution monitoring than the proposed tracking devices noted in Option 2, but would not include camera monitoring.
 - Installation costs will vary depending on time taken and rates charged by engineers. Vessel tracking device installs are anticipated to take 1 – 3 hours and REM system installs are anticipated to take 6 – 8 hours.
 - All such systems would be subject to a monthly data charge, as well as a cost for hosting, in the range of £30 - £50 per month.
- There would be increased administrative costs for the Scottish Government.
- While the tailoring of these requirements are still to be established, to allow a costing for the full fleet it is assumed that 10% of the under 12 metre fleet will be required to use camera REM, 10% of the fleet will be required to use REM without cameras, 40% of the fleet will be using a vessel tracking device as in scenario 2, and 40% of the fleet will be using a vessel tracking device at its cheapest estimated price, to reflect lower requirements for this fleet.
- Under these assumptions the total cost on an annual basis to the entire under 12 metre fleet to maintain and renew the system, assuming the cost of renewing the system is spread out over 10 years, is estimated to range between £327,000 - £612,000
- Under these assumptions the total cost to the Scottish Government of purchasing the systems is expected to range between £730,000 - £2,191,000

4.4 Benefits

Option 1 benefits – Do nothing

- No additional costs associated with cost of device, installation, data transfer or maintenance of equipment incurred by either the industry or the Scottish Government.

Option 2 benefits – Blanket requirement for vessel tracking devices across the commercial inshore fishing fleet

- Adopting a blanket approach to deploying vessel tracking would be quicker and easier than Option 3 and would deliver greater consistency with UK counterparts as it represents a similar approach.
- Data derived from vessel tracking devices would improve information on where vessels are fishing, informing future management of fisheries and policy development.
- It would assist in the management of MPAs and the enforcement of spatial restrictions.
- It would increase deterrence of non-compliant activity and result in better data availability to inform risk-based and targeted compliance inspections.
- Use of tracking technology is widely considered a means to achieve better regulation of fishing activity.
- Fishers could use tracking data to provide their markets with accurate information on catch location, promoting consumer confidence and enabling additional market benefits.
- The data captured could be used by fishers to feed into consultations on marine planning issues.

Option 3 benefits – A tailored rollout of vessel tracking devices and inshore REM systems across the commercial inshore fishing fleet

The same as those noted for Option 2 but with improved deterrence of non-compliant activity and stakeholder confidence in the distribution and activities of fishing businesses in Scottish waters. While position reporting via a simple vessel tracking device will be suitable for most inshore fishing businesses, we may have specific monitoring requirements for other groups of fishers or specific areas within our waters. For example, if we wished to assess fishing activity, we could require vessels of interest to carry a tracking device with sensor functionality. In the case of groups of vessels or areas about which we needed to know the most – like those fishing close to protected areas or to improve data for some stocks – we could require carriage of an REM system. Such a system may include functionality, like cameras, that would enable high resolution assessment of catch.

- Less of an administrative cost to the Scottish Government for certain fleet segments where lower resolution of data is required, as the characteristics of the device would be tailored to the nature of the fishing activity. Improved data collection would mean that the Scottish government could make efficiencies in how we allocate science and compliance assets. For example, by focussing scientific assessment work on stocks that are under greatest fishing pressure, and compliance assets where fishing activity is in close proximity to closed areas.

5. Regulatory and EU Alignment Impacts

5.1 Intra-UK trade

No. There is no expected impact on intra-UK trade as this will only impact the act of fishing in Scottish waters or Scottish vessels, wherever they may be fishing; and will not have any effect on downstream purchases or sales. As set out in the consultation paper, similar measures are being / have been introduced or considered by other UK Fisheries Administrations.

5.2 International Trade

Limited or no impact. This policy should have no impact on imports or exports of goods or services, nor on the trade flows between countries. Domestic and foreign businesses will be impacted in the same way within Scottish waters but will have different rules out with Scottish waters, which are not expected to confer any advantage to domestic or foreign businesses due to the low cost of the system relative to the market (<1%). Furthermore, the fleet size targeted are unlikely to travel outside of national waters and so any impact would only be a negligible impact on the price of Scottish goods.

5.3 EU Alignment

The EU under 12 metre fleet segment has no relevant history or track record of fishing in Scottish waters due to vessel size, safety concerns and geographical distance from flag states. Furthermore, regional restrictions to fishing licences were accepted under the EU.

6. Scottish Firms Impact Test

Businesses are expected to engage through the RIFG network to ensure full understanding and the widest possible responses to consultation.

Seafish data was used to understand the average profitability of the under 12 metre fleet in Scotland. Profitability of the under 10 metre Scottish fleet and the whole UK pots and traps fleet are noted below, with the 10 – 12 metre Scottish fleet expected to range between these values.

Costs to the fleet are expected to be low with £180 for tracking devices and up to £600 for REM systems expected annually. This would represent around 2% and 7% respectively of the net profits of the average 10 metre and under Scottish vessel.

Replacement costs for vessel tracking devices and REM systems are expected to be borne by the fleet with costs depending on system lifespan. Assuming a lifespan of 10 years and spreading the cost over 10 years it is expected that vessel tracking costs would be up to £130 per year to replace. This represents another 2% of net profits for the 10 metre and under fleet, with the highest REM system cost expected to be up to £500 per year, representing 6% of net profits for the 10 metre and under fleet.

As such the highest cost associated with this change is expected to be on average around 4% of the 10 metre and under fleet’s profit for a tracking device and about 13% of the 10 metre and under fleet’s profit for REM (although only around 3% of the profit of 10 – 12 metre pots and traps vessels in the UK for REM).

These costs are only represented against the 10 metre and under fleet. On average, within this fleet there is expected to be a range of profits with some above and some below the average, as such costs may be notably higher relative to profits for some fishers. It is not expected that this regulation would cost the industry more than their average profits.

Table 1: Average net profit per vessel in 2021 prices, £ thousand

Year	2016	2017	2018	2019	2020	5 year Average
10 metre and under Scottish fleet	9.5	9.6	10.0	9.5	4.4	8.6
10-12 metre UK pots and traps	41.7	47.2	52.2	43.9	17.1	40.4

Source: Seafish fleet enquiry tool tableau

7. Competition Assessment

The proposals in the consultation should ensure that Scottish fishers are not being disadvantaged against other fishers working in Scottish waters.

The other UK Fisheries Administrations have / are also looking to implement vessel tracking requirements for under 12 metre commercial fishing vessels.

It should be noted that there may a minimal advantage gained by the non-Scottish or non-UK fleet fishing for similar species if they do not have to incur this additional cost and thus have more financial flexibility, however, given the small cost relative to the value of the market (<1%) this is not expected to be significant.

8. Consumer Assessment

The consumer in this is considered to be those who purchase the fish from the under 12 metre fleet. It is not expected they will be impacted upon by the price paid by consumers for fish and shellfish, as the cost of this relative to the fisher's revenue would be negligible (<1%). However, it is expected to improve consumer confidence in the sustainability of the product they are purchasing.

9. Test Run of Business Forms

As the policy is still under development, no business forms have yet been produced nor are they expected.

10. Digital Impact Test

10.1 Digital Impact Test Filter Questions

Does the measure take account of changing digital technologies and markets?

Yes. This is working with industry to move to a new and increasingly mature digital technology through VMS alternatives that will enable enhanced monitoring, with the possibility of increased use of artificial intelligence to review the footage.

Will the measure be applicable in a digital/online context?

Yes. Data from vessel tracking devices and REM systems will be uploaded, accessed, and processed digitally by the Scottish Government.

Is there a possibility the measures could be circumvented by digital / online transactions?

No. There are no transactions in this process.

Alternatively, will the measure only be applicable in a digital context and therefore have an adverse impact on traditional or offline businesses?

Possibly, as this is a new requirement on the fishing fleet. Larger vessels have learned to operate AIS and VMS systems, whereas the under 12 metre fleet are not compulsorily required to have any form of online equipment. As such there may be a requirement of upskilling crew to understand the vessel tracking and REM systems to ensure they maintain compliance.

If the measure can be applied in an offline and online environment will this in itself have any adverse impact on incumbent operators?

No. While there are other adverse impacts on operators the online/offline nature should not be one of them, as vessels would upload when arriving in port or near the coast which is part of their normal operations.

11. Legal Aid Impact Test

It is not expected that the vessel tracking or 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. This is because any legal/authorisation decision impacted by the proposed legislation will largely affect businesses rather than individuals.

12. Enforcement, Sanctions, and Monitoring

This policy will be a method of ensuring compliance with existing fisheries legislation in addition to the benefits in enhanced scientific data gathering. Penalties will be applied in line with existing offences.

The Scottish Government will review the data provided by vessel tracking devices and REM systems in order to support compliance with policy objectives. The frequency of review will be risk-based and supported by the other tools and resources available to the Marine Directorate.

The Scottish Government will remain the relevant competent authority with responsibility for scientific studies, compliance and monitoring.

13. Implementation and Delivery Plan

13.1 Consultation timescales

Launch consultation, running 14 August 2023 – 07 November 2023.

13.2 Preparation of draft legislation

Incorporating feedback from the consultation, legislation to be introduced by 2026.

13.3 Post-implementation Review

There will be an ongoing review of the effectiveness of this policy with the outputs expected to be regularly reviewed and used by the Marine Directorate.

14. Summary and Recommendation

Option 3 – **a tailored roll-out of vessel tracking and inshore REM systems across the commercial inshore fishing fleet** – is recommended. Use of tracking technology is widely considered a means to achieve better regulation of fishing activity. By taking this approach we can consider which tracking device or REM system best suits each group of fishers on a case-by-case or tranche-by-tranche basis so that we can begin collecting data as soon as possible.

This approach will allow for a more efficient outcome by balancing the benefits of monitoring and the costs of the devices.

Option	Total cost per annum – economic, environmental, social	Total benefit per annum – economic, environmental, social
Option 1 – Do nothing	<ul style="list-style-type: none"> • Spatial data and the evidence base to inform decision making regarding our inshore commercial fishing fleet would not improve. • The absence of vessel tracking and inshore REM, in the long-term might negatively impact fishers’ ability to evidence their business activities, making them less able to represent themselves in discussions alongside other marine uses (such as aquaculture, renewable energy and marine spatial planning). 	<ul style="list-style-type: none"> • No additional costs associated with installation or maintenance of equipment incurred by either the industry or the Scottish Government.
Option 2 – Blanket	<ul style="list-style-type: none"> • There would be implicit purchase, installation and 	<ul style="list-style-type: none"> • Adopting a blanket approach to deploying

<p>requirement</p> <p>vessel tracking devices across the commercial inshore fishing fleet</p>	<p>operating costs to any solution selected for blanket roll-out:</p> <ul style="list-style-type: none"> ○ Equipment, installation and commissioning of the ‘low-cost tracking solution’ being trialled in the Outer Hebrides Inshore Fisheries Pilot costs approximately £160 plus an annual communications charge associated with the multi network SIM that the system uses. This is expected to be the lower bound of the expected cost range. ○ Details of the type of tracking devices approved for use in English waters are published online.¹³ Initial costs range from £475 - £1300. ○ Installation costs will vary depending on time taken and rates charged by engineers. Tracking device installs are anticipated to take between 1 and 3 hours. ○ Ongoing running costs range from £8 – £15 per month. ● There would be increased administrative costs for the Scottish Government. ● The total annual cost across the entire under 12 metre fleet (<i>circa.</i> 1,700 vessels) to maintain and renew the systems, assuming an equipment lifespan of 10 	<p>vessel tracking would be quicker and easier than Option 3 and would deliver greater consistency with UK counterparts as it represents a similar approach.</p> <ul style="list-style-type: none"> ● Data derived from vessel tracking devices would improve information on where vessels are fishing, informing future management of fisheries and policy development. ● It would assist in the management of MPAs and the enforcement of spatial restrictions. ● It would increase deterrence of non-compliant activity and result in better data availability to inform risk-based and targeted compliance inspections. ● Use of tracking technology is widely considered a means to achieve better regulation of fishing activity. ● Fishers could use tracking data to provide their markets with accurate information on catch location,
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¹³ [List of i-VMS type approved devices for under 12 metre English vessels - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

	<p>years, is estimated to range between £191,000 - £529,000.</p> <ul style="list-style-type: none"> • The total cost to the Scottish Government of purchasing the systems is expected to range between £273,000 and £2,218,000. 	<p>promoting consumer confidence and enabling additional market benefits.</p> <ul style="list-style-type: none"> • The data captured could be used by fishers to feed into consultations on marine planning issues.
<p>Option 3 – A tailored rollout of appropriate vessel tracking and inshore REM systems across the commercial inshore fishing fleet</p>	<ul style="list-style-type: none"> • We have already trialled a number of different tracking devices on Scottish inshore fishing vessels to improve our understanding of this approach and we know that any system we consider will have implicit equipment, installation and upkeep charges. As an example, the ‘low-cost tracking solution’ being trialled in the Outer Hebrides Inshore Fisheries Pilot costs approximately £160 plus an annual communications charge associated with the multi network SIM that the system uses. • Details of approved i-VMS systems approved for use in English waters may also be suitable for some groups of fishers (see footnote 12). • While we anticipate a simple tracking device will be sufficient for most inshore fishing vessels, we might consider the use of more comprehensive REM-type systems (with or without cameras) for some, based on assessment of risk: 	<ul style="list-style-type: none"> • The same as those noted for Option 2 but with improved deterrence of non-compliant activity and stakeholder confidence in the distribution and activities of fishing businesses in Scottish waters. While position reporting via a simple vessel tracking device will be suitable for most inshore fishing businesses, we may have specific monitoring requirements for other groups of fishers or specific areas within our waters. For example, if we wished to assess fishing activity, we could require vessels of interest to carry a tracking device with sensor functionality. In the case of groups of vessels or areas about which we needed to know the most – like those fishing close to

	<ul style="list-style-type: none"> ○ Systems with cameras may cost in the region of £2,000 – £5,000. ○ Systems without cameras are likely to cost in the range of £1,000 – £2,000, including higher resolution monitoring than the proposed tracking devices noted in Option 2 but would not including camera monitoring. ○ Installation costs will vary depending on time taken and rates charged by engineers, vessel tracking device installs are anticipated to take 1-3 hours and REM system installs are anticipated to take 6 – 8 hours. ○ All such systems would also be subject to a monthly data charge, as well as a cost for hosting to the Scottish Government, in the range of £30 - £50 per month. ● There would be increased administrative costs for the Scottish Government. ● While the tailoring of these requirements are still to be established, to allow a costing for the full fleet it is assumed that 10% of the under 12 metre fleet will be required to use camera REM, 10% of the fleet will be required to use REM without cameras, 40% of the fleet will be using a vessel tracking device as in scenario 2, and 40% of the fleet will be 	<p>protected areas or to improve data for some stocks – we could require carriage of an REM system. Such a system may include functionality like cameras that would enable high resolution assessment of catch being retained onboard.</p> <ul style="list-style-type: none"> ● Less of an administrative cost to the Scottish Government for certain fleet segments where lower resolution of data is required, as the characteristics of the device would be tailored to the nature of the fishing activity. Improved data collection would mean that the Scottish government could make efficiencies in how we allocate science and compliance assets. For example, by focussing scientific assessment work on stocks that are under greatest fishing pressure, and compliance assets where fishing activity is in close proximity to closed areas.
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	<p>using a vessel tracking device at its cheapest estimated price, to reflect lower requirements for this fleet.</p> <ul style="list-style-type: none"> • Under these assumptions the total cost on an annual basis to the entire under 12 metre fleet to maintain and renew the system, assuming the cost of renewing the system is spread out over 10 years, is estimated to range between £327,000 - £612,000. • Under these assumptions the total cost to the Scottish Government of purchasing the systems is expected to range between £730,000 - £2,191,000 	
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9. Declaration

I have read the Partial Business and Regulatory Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options. I am satisfied that business impact has been assessed with the support of businesses in Scotland.

Malcolm Pentland
07/07/2023

Deputy Director
Marine Economy and Communities
Marine Directorate