

Remote Electronic Monitoring – Analysis of Consultation Responses: Final Report

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Executive Summary

1. In spring 2022, the Scottish Government undertook a public consultation on '[Enhancing sustainable fisheries management - Remote Electronic Monitoring](#)'. The consultation ran from 15 March 2022 to 7 June 2022. This report presents findings from an independent analysis of the responses.
2. The consultation received 48 valid responses. Responses were submitted by 15 individuals and 33 organisations or groups. Organisational responses included fishing organisations, conservation organisations, public sector and third sector organisations. Throughout the consultation responses it was clear that fishing organisations and conservation organisations expressed differing viewpoints on a number of matters.
3. The purpose of this public consultation was to seek views on the following:
 - The general principles of Remote Electronic Monitoring (REM) and stakeholder views on these points as they will apply across fleet segments - not just those consulted on at this stage.
 - Formal consultation on mandatory REM requirements in the:
 - 1) Pelagic Sector. Defined in the consultation as Refrigerated Sea Water /Chilled Sea Water (RSW/CSW) and freezer trawls fishing with a mesh size of 70mm or less within Scottish waters, targeting mainly mackerel and herring, with a significant catching capacity whilst delivering high quantity and value seafood products. This requirement is being implemented following the consultation, but views were sought on aspects of the policy.
 - 2) Scallop dredge sector. This requirement is being implemented following the consultation, but views were sought on aspects of the policy.
 - Initial views regarding REM in the demersal sector, defined as mobile vessels with an overall length of 12 metres and over – specifically, large whitefish and mixed fishery vessels fishing in Scottish waters. The aim was not to formally consult on the implementation of REM for this sector, but to seek initial views from stakeholders on a range of options.
4. Following the principles set out within the Scottish Government's Fisheries Management Strategy, that a one-size-fits- all approach to management should be avoided to take account of the variations in fishing practices across different fleet sectors, and the need for proportionality, the proposals in the consultation for these different sectors vary in coverage, specification, and timescale for implementation.

5. The following views supporting the use of REM cut-across several questions in the consultation responses:
 - REM has the potential to be a driver to improve sustainability in the Scottish fishing industry. The benefits of this are both ecological and commercial due to consumer attitudes towards sustainable fishing.
 - Adopting the proposed mandatory use of REM would position Scotland as a world leader in promoting sustainable fisheries management.
 - That REM could provide significant scientific benefits in terms of monitoring of stocks and minimising negative impacts on the wider marine environment including sensitive species bycatch (the unintended capture or entanglement of non-target species in fishing gear).
6. The following views opposing the proposals cut-across several questions in the consultation responses:
 - Requiring the use of REM on Scottish vessels outside the Scottish zone could undermine the level playing field and place Scottish vessels at a disadvantage compared to non-Scottish vessels.
 - That there were likely to be significant compliance issues associated with REM systems and concerns were raised around the practicalities of enforcement of any compliance requirements.
 - That these requirements could introduce significant costs to fishers.
7. The following considerations to the proposed application of REM cut-across several questions in the consultation responses:
 - That a true level playing field could only be achieved where all vessels, regardless of origin, were subject to the same REM requirements and standard of application in Scottish waters.
 - Wider consultation may be required including with non-UK vessels.
 - Effective data monitoring and sharing would be critical in ensuring the ambitions of the application of REM could be met.
8. The Scottish Government published a consultation on its proposed Future Catching Policy in parallel with the consultation on REM. Within both consultations, the clear links between the two policies were identified by some respondents. For example, by requesting that additional monitoring of bycatch be undertaken using REM to inform action under the Future Catching Policy. The Scottish Government will need to consider the results of both consultations to inform the development of these policies in a complementary way.

Introduction and background

Introduction

- 1.1. This report provides an analysis of responses to the Scottish Government consultation on 'Enhancing sustainable fisheries management - Remote Electronic Monitoring'. The consultation ran from 15 March 2022 to 7 June 2022.

Policy Context

- 1.2. Scotland's seas host an abundance of marine life providing a healthy, low carbon source of food in addition to a source of employment for Scotland and the international community. The Scottish Government's Fisheries Management Strategy¹ sets out a responsibility as managers of this public resource to ensure that fishing takes place sustainably and responsibly, and that fishing activity is accountable while delivering confidence for consumers and the wider public with regards to the products offered.
- 1.3. Technology such as Remote Electronic Monitoring (REM) and advancements in Machine Learning (ML) provide opportunities to modernise the way in which accountability and confidence is provided in delivering responsible and sustainable management.
- 1.4. REM places an enhanced and independent level of monitoring on board, for example by using cameras, sensors, and GPS. These monitoring devices mean fishing activity taking place can be determined. REM is a key fisheries enforcement and scientific tool and forms an important part of the ten-year Fisheries Management Strategy.
- 1.5. The proposals detailed within the consultation paper² are set in this context, arguing that the following benefits can be delivered using REM technology:
 - improve the capacity to monitor fishing activity at sea and increase compliance with legislation for all vessels fishing in Scottish waters,
 - enhance scientific capability and knowledge, supporting sustainability of fish stocks and management of natural resources,
 - deliver the confidence and accountability that consumers and the public want to see from seafood products,
 - improve fishing data to help the fishing industry co-exist with other marine users, better assist marine planning, and build resilience in fishing fleets and stocks.

¹ [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/1-introduction-and-background.aspx)

² [Ensuring Long Term Sustainability From Scotland's Marine Resources - Remote Electronic Monitoring \(REM\) Consultation](#)

- 1.6. The Scottish Government already monitors limited vessels in Scottish waters using REM and has committed to mandating the technology on scallop dredge and pelagic fleets. Given the proposed benefits of REM, through the consultation the Scottish Government sought views on various aspects relating to the usage of REM as regards Scottish vessels (and all other vessels fishing in Scottish waters).
- 1.7. This stage of implementation looks to make REM mandatory for scallop dredge and large pelagic vessels, while also exploring options for further rollout to other parts of the demersal fishing fleet.
- 1.8. The legislation will ensure a level-playing-field whereby the requirements will apply to all vessels fishing in Scottish waters, regardless of origin.
- 1.9. During the public consultation period for REM, the Scottish Government was also running a separate but related consultation on proposals relating to the Future Catching Policy (FCP).³ The FCP looks to develop new rules to regulate activity at sea in order to support increased accountability and more sustainable fishing practices.

The consultation

- 1.10. The purpose of this public consultation was to seek views on the following:
 - The general principles of REM and stakeholder views on these points as they will apply across fleet segments - not just those consulted on at this stage.
 - Formal consultation on mandatory REM requirements in the:
 - Pelagic sector. Defined in the consultation as Refrigerated Sea Water /Chilled Sea Water (RSW/CSW) and freezer trawls fishing with a mesh size of 70mm or less within Scottish waters, targeting mainly mackerel and herring, with a significant catching capacity whilst delivering high quantity and value seafood products. This requirement is being implemented following the consultation, but views were sought on aspects of the policy.
 - Scallop dredge sector. This requirement is being implemented following the consultation, but views were sought on aspects of the policy.
 - Initial views regarding REM in the demersal sector, defined as mobile vessels with an overall length of 12 metres and over – specifically, large whitefish and mixed fishery vessels fishing in Scottish waters. The aim was not to formally consult on the implementation of REM for this sector, but to seek initial views from stakeholders on a range of options.

³ [Scotland's Future Catching Policy Consultation](#)

- 1.11. Following the principles set out within the Fisheries Management Strategy, that a one-size-fits- all approach to management should be avoided to take account of the variations in fishing practices across different fleet sectors, and the need for proportionality, the proposals for these different sectors vary in coverage, specification, and timescale for implementation.
- 1.12. The consultation contained 14 questions - 2 open, and 12 closed with space to provide further comments. The questions covered:
- Why REM? (Question 1)
 - Costs (Question 2)
 - Pelagic Vessels (Questions 3-4)
 - Timeline for compliance with the mandatory REM requirement (Question 5)
 - Benefits of REM in the pelagic sector (Question 6)
 - The pelagic REM system (Questions 7-9)
 - REM for scallop dredge vessels (Question 10)
 - REM system specification for scallop dredge vessels (Questions 11-12)
 - REM for large demersal vessels (Question 13)
 - Business Regulatory Impact Assessment (Question 14)
- 1.13. Annex 1 contains a complete list of consultation questions.

Aim of this report

- 1.14. This report presents a robust analysis of the material submitted in response to the consultation. The structure of the report follows the structure of the consultation paper and considers the response to each consultation question in turn.
- 1.15. Annexes 1-3 provide further detail about the consultation questions, the responses, the respondents, and the views expressed.

Approach to the analysis

- 1.16. The analysis seeks to identify the most common themes and issues. It does not report on every single point raised in the consultation responses. All responses, where the respondent has given permission for their comments to be published will be made available on the Citizen Space website.
- 1.17. Equal weighting has been given to all responses. This includes the spectrum of views, from large organisations with a national or UK remit or membership, to individuals' viewpoints.

- 1.18. This analysis report quotes and paraphrases some of the comments received. However, this does not indicate that these comments will be acted upon or given greater credence than others.

Comment on the generalisability of the consultation findings

- 1.19. As with all consultations, the views submitted in this consultation are not necessarily representative of the views of the wider public. Anyone can submit their views to a consultation, and individuals (and organisations) who have a keen interest in a topic – and the capacity to respond – are more likely to participate in a consultation than those who do not. This self-selection means that the views of consultation participants cannot be generalised to the wider population. For this reason, the main focus in analysing consultation responses is not to identify how many people held particular views, but rather to understand the range of views expressed and the reasons for these views.

2. About the respondents and responses

Number of responses received

- 2.1. A total of 48 responses were received. A vast majority of consultation responses were submitted through the online portal, with the remainder submitted to the Scottish Government directly, for example, by email. Where this was the case, the Scottish Government passed all correspondence directly to the Diffley Partnership for review and logging.
- 2.2. Diffley Partnership exported responses from Citizen Space into Microsoft Excel and manually added non-Citizen Space responses for data cleaning, review, and analysis.

About the respondents

- 2.3. A total of 48 responses were received (all valid i.e., no duplicate or blank responses), a majority of which were submitted by organisations (69%) (see Table 1).

Table 1: Type of respondent

Respondent Type	n	Proportion
Individuals	15	31%
Organisations	33	69%
Total	48	100%

- 2.4. A variety of organisations responded to the consultation. The respondent categories agreed with Scottish Government are as follows:
 - Fishing organisations (including representative bodies and fishing industry)
 - Conservation
 - Public Sector
 - Third Sector
 - Other

2.5. Table 2 below shows the number of respondents by category.

Table 2: Respondent category

Respondent Type	n
Fishing organisations (including representative bodies and fishing industry)	22
Conservation	7
Public Sector	2
Third Sector	1
Other	1
Total	33

3. Why REM? (Q1)

- 3.1. The consultation paper discussed proposals to exercise the Scottish Government's powers to require that Scottish vessels adhere to REM measures when fishing outside Scottish waters. The consultation document highlighted several advantages to this: it would add to the richness of data collected, would assist in compliance, and deliver confidence and accountability in fishing practices. It is recognised that this would lead to Scottish fishing vessels working with more monitoring technology than others, but this was framed as demonstrating Scottish fishing ambition.

Q1. Operation of REM outside the Scottish Zone

Q1: Do you agree that Scottish vessels required to use REM in the Scottish zone should also have REM operational when operating outside of the Scottish zone?

- 3.2. Question 1 received 46 total responses - 31 from organisations and 15 from individuals. Overall, 57% of closed responses indicated agreement that Scottish vessels be required to use REM both in and outside the Scottish zone while 30% disagree and 13% said they did not know. The level of agreement was lower among organisational responses (48%) and higher amongst individual responses (73%).
- 3.3. Among organisational responses 35% said that they did not agree with the requirement for Scottish vessels to have REM operational outside the Scottish zone. Fishing organisations were most likely to disagree while most conservation organisations supported the use of REM outside the Scottish zone.

Support for requiring REM outside the Scottish Zone

- 3.4. Those who agreed with the idea of Scottish vessels having REM operational outside the Scottish Zone highlighted various advantages this would provide.
- 3.5. Firstly, improved sustainability in the Scottish fishing industry was put forward as not only morally desirable, but, more frequently, marketable to consumers. Linked to sustainability, a few respondents highlighted Scotland's opportunity to demonstrate its position as a world leader and promote best practice across the world. Others additionally mentioned the benefits of the scientific data REM would provide. The responses that tended to focus on sustainability came from fisheries, individuals, and conservation organisations. The following quotes illustrate the above themes:

"The monitoring of fishing should be something that applies across the oceans, not just in territorial waters. By starting this practice, it would

be hoped that one day it would become the norm across all fishing nations that their vessels use a monitoring system at all times no matter their location; this could be supported by the additional sustainability credentials that would be afforded to fish caught by Scottish vessels.” [Individual]

“Greater transparency in the sustainability and environmental impact of fisheries is increasingly important to consumers. Demonstrating that Scottish vessels obey regulations and have little bycatch wherever they fish can only improve the sustainability credentials of the sector.” [Organisation, Fishing Organisation]

“We recognise that such a requirement would mean that vessels fishing in Scottish waters would have more monitoring technology than others operating out with the Scottish zone but believe that such a requirement in Scottish waters could mean Scottish Government play an important leadership role in bringing about the acceptance of REM by other nation’s fleets. The EU’s fisheries control system, which ensures the Common Fisheries Policy is implemented and rules, including the Landing Obligation, are followed – is currently being reformed and as part of this, onboard cameras could become mandatory. Mandating REM with cameras for all vessels fishing within the Scottish zone (and for Scottish vessels fishing out with) could encourage and accelerate the adoption of REM across the EU.” [Organisation, Conservation]

“Many Scottish registered fishing vessels fish out with the Scottish zone; it follows therefore that Scottish vessels should be required to use REM when operating out with the Scottish zone. As interest in provenance of seafood is increasing, only requiring REM to be operational in the Scottish zone would not provide the levels of confidence needed to improve the marketability of Scottish catches and the reliability of scientific stock assessments and advice.” [Individual]

- 3.6. Relating to the practical use of REM for management and compliance, several responses highlighted how the technology generally assists in fisheries management and that not using REM outside Scottish zones would reduce the aforementioned benefits because it would allow space for non-compliance:

“Vessels that are Scottish that are operating outside the Scottish zone still represent Scottish nation's fishing interests and any illegal activity will reflect on Scottish government and the nation as a whole. It will deter opportunities to discard outside of Scottish waters and so improve management of stocks that migrate across national boundaries or are shared stocks. For example, if vessels are not

allowed to discard certain species in Scottish waters they may be tempted to sail into other waters, switch off REM and dump unwanted fish unrecorded. If illegal transshipment of catch is a possibility, then it will be deterred. It also provides evidence to defend any false allegations against the Scottish fleet” [Individual]

“All Scottish vessels should have operational REM at all times, irrespective of the waters they are fishing. [...] As noted in Sn. 3.3 of the consultation paper, REM provides ‘significant scientific and compliance benefits.’ The more data collected regarding the activities of vessels in the fleet, the more effectively the fishery can be managed, and the more sustainable it will become.” [Organisation, Conservation]

Opposition to requiring REM outside the Scottish Zone

- 3.7. Opposition to Scottish vessels using REM outside the Scottish Zone focused heavily on the way this would undermine the level playing field. Concern about level playing field came from various groups, but very frequently from representative bodies for fisheries:

“the use of REM should be on a level playing field basis and that all vessels operating in and outside the Scottish zone should be subject to the rules and regulations of the relevant fishing areas.” [Organisation, Fishing Organisation]

“As a matter of principle, and in line with the Government's own 'level-playing field' guarantee, Scottish vessels required to use REM in the Scottish zone should not be required to comply with more onerous rules than non-Scottish vessels out with the Scottish zone.

“If REM is a requirement in fishing zones other than the Scottish zone and/or in international waters, then of course Scottish vessels fishing in those zones will have to comply in exactly the same way as every other comparable vessel fishing there.” [Organisation, Fishing Organisation]

- 3.8. Furthermore, relating to REM in general, several responses expressed negative feelings of being policed and felt that compliance was the main purpose of the technology rather than the benefits supporters of the policy highlighted in their responses. A small minority viewed REM as unnecessary given other tracking technology already aboard Scottish vessels such as Automatic Identification System (AIS) transponders and VMS.

“This consultation reads like you are more concerned with policing Scottish boats than managing environmental practice in Scottish Waters. Surely all boats in Scottish waters should be monitored. I’m all for fisheries monitoring – But what is the point of only monitoring

Scottish boats if it will only be used to punish Scottish boats? Surely this data can be supplemented with fishing vessel behaviour from freely available sentinel 2 data and compared to data on found litter at sea.” [Individual]

Wider points

- 3.9. A minority of open responses mentioned the advantages of the creation of matching UK legislation.

“All Scottish vessels should have REM regardless of where they are operating and there should be similar systems in place throughout the UK, to ensure that all UK vessels should have similar systems operating in all UK waters.” [Organisation, Fishing Organisation]

- 3.10. Finally, several responses appeared to misunderstand the question as relating to whether non-Scottish boats in the Scottish Zone would be required to use REM – which the consultation paper stated would be the case.

4. Costs (Q2)

- 4.1. The consultation paper discussed estimates of 3 types of costs associated with implementing and maintaining REM systems, and estimates of variation in these costs across vessel:

Table 3: Estimated costs of REM

	Estimated costs for pelagic vessels for a camera system	Estimated costs for demersal vessels for a camera system	Estimated costs for scallop vessels for a camera system
Estimated system cost	£6,300 - £9,000	£6,500 - £6,800	£4,000 - £6,000
Estimated installation cost	£1,000- £3,000	£2,000 - £2,500	£500 - £1500
Estimated Annual running cost	£700 - £2,500	£1,000	£350-£650

- 4.2. The consultation recognised that challenges in meeting these costs may vary in distinct parts of the fishing fleet and suggested that public funding for upfront and purchasing costs or grant funding, for example via Marine Fund Scotland, may be appropriate for some Scottish vessels in some circumstances.

Q2. Barriers to vessels meeting REM systems costs

Q2: Do you foresee any barriers to vessels meeting the costs associated with the REM systems themselves? This includes upfront and ongoing costs.

- 4.3. Question 2 received 45 total responses – 30 from organisations and 15 from individuals. Overall, 64% of respondents foresee barriers to vessels meeting the costs of REM. Organisations were more likely to foresee barriers to costs (73%) than individuals (47%). Fishing organisations were particularly likely to state that they could foresee barriers to vessels meeting the costs associated with REM systems.

Costs identified

- 4.4. Although this question specifically asked about foreseeing any barriers to meeting costs, various costs were identified by respondents in their open answers. This could demonstrate perceptions of costs that may not exist, or costs that have not been accounted for in the consultation document:
- Upfront purchasing and installation costs
 - Maintenance costs/repairs

- Damages incurred during installation
 - Video review costs
 - Developing the REM systems themselves
 - Additional fuel
 - Damage to sector when vessels are found to be non-compliant and cannot fish.
- 4.5. Of this list, most respondents focussed on the costs associated with purchasing, installing, maintaining, and repairing REM systems, with only a small minority mentioning the others listed.

Fragility of the fishing industry

- 4.6. Many responses highlighted the current fragility and challenges faced by the fishing industry. This context was recognised not only by representative bodies for fisheries, as may be expected, but also by individuals, fishing organisations, conservation organisations, third sector, and public organisations. The quote below illustrates current challenges facing the sector:

“Additional costs, as part of fleet modernisation and the introduction of REM, are inevitable. Therefore, there is a role for public support, particularly in the context of recent market disruption, the covid-19 pandemic, and rising energy prices.” [Organisation, Public Sector]

“WRT the demersal fishing ... The cost of buying or leasing quotas added to the increased cost of fuel is already pushing small fishing businesses to sell up or go bankrupt. There seems very little understanding within the government about the strain the industry is under and too much emphasis on enforcement.” [Individual]

Funding Assistance

- 4.7. A majority of responses (which came from a wide variety of organisation types and individuals) suggested some form of funding assistance should be provided. These suggestions varied in where they believed this funding should come from, with the vast majority suggesting the Scottish Government. The suggestions also varied in the extent of funding they believe will be required, from funding covering every part of an REM system’s lifecycle, to funding exclusively for upfront and installation costs. The following response went beyond most others to consider how costs would vary in different areas:

“The installation costs of all REM should be fully grant funded for all vessels, however, the additional fuel and gear costs being faced by all vessels could prevent many vessels for being able to meet all the

annual running and maintenance costs. Vessels operating in remote locations where they do not have access to engineers that could repair REM equipment will be placed at an unfair dis-advantage of the steaming costs associated to travel to mainland ports, especially during periods of adverse weather conditions.” [Organisation, Fishing Organisation]

- 4.8. The reasoning provided by some respondents for vessel operators to cover maintenance and repair costs was varied:

“As a general principle it is likely that there will be a need for some government support in the set-up phase, but that replacement of technology should fall to operators as this will disincentivise intentional damage to technology at sea.” [Individual]

“[We] anticipate that there will be some objections to paying the costs associated with REM - both upfront and ongoing costs - among fishing vessel owners, particularly those who view REM as being purely for enforcement purposes. However, given that REM provides significant scientific and compliance benefits, and that fish stocks are a publicly owned resource, the costs of REM, should be borne by the vessel owners, rather than by the public.

[We] recognises that the costs (especially upfront costs) could be burdensome so there is a case for some directed public financial support. One benefit of such support could be that it would speed up installation of REM. However, [we] believes that ongoing costs, and any replacement equipment, should be covered by fishermen without support.” [Organisation, Conservation]

Uneven Impacts

- 4.9. When discussing the need for funding assistance, various responses acknowledged that different fleet segments and differently sized fishing operations could be impacted in different ways in relation to meeting the costs of REM. In particular, that those barriers could be more acutely felt by smaller vessels. When it came to differences among fleet segments, various respondents argued that given pelagic vessels already have extensive monitoring equipment onboard any additional costs should be covered by the government. Demersal vessels tended to be discussed in the context of the challenges being faced by the industry, suggesting they could struggle with the costs. Finally, in the few instances scallop vessels were specifically mentioned, there was disagreement on whether or not costs would be easily met.

“Pelagic vessels have an extensive system of monitoring equipment fitted in most working areas of the vessel. Any additional REM

equipment required that is in addition to the vessel's system should be grant funded by Scottish Government." [Organisation, Fishing Organisation]

"The costs as detailed in the consultation document should not impose a significant burden on scallop vessels." [Organisation, Fishing Organisation]

"The upfront costs will be hard to meet for scallop vessels, especially with the high fuel prices. The current scallop vessels with REM are happy to have it on but it was free for them." [Organisation, Fishing Organisation]

- 4.10. More broadly, it was acknowledged that smaller fishing operations could struggle to fund the installation and running costs of REM:

"but funding should be provided for smaller companies if costs are prohibitive, and loan schemes for larger organisations" [Organisation, Fishing Organisation]

"Purchase, installation and running costs are significant, especially for the smaller operators. Grant funding should be available wherever possible. This will improve user support for REM." [Organisation, Conservation]

Wider Points

- 4.11. Of the minority that did not foresee cost barriers, very few provided reasoning in the open answers
- 4.12. Finally, several responses stated that they struggled to answer the question as they didn't think they had enough information, or posed their own questions for more detailed costing in their open responses, for instance:

"The [organisation] questions whether the costs outlined reflects the full cost of retro-fitting REM equipment and all the necessary wiring to large and complex pelagic vessels. Who would bear the costs of any damage done to the vessel or its equipment as a consequence of REM installation?" [Organisation, Fishing Organisation]

5. Pelagic Vessels (Q3-4)

- 5.1. The consultation paper discussed the Scottish Government's intention, as set out in the Fisheries Management Strategy, to introduce legislation to the Scottish Parliament making it a legal requirement for all pelagic vessels licenced to fish within Scottish waters (The Scottish Zone) to have a fully operational REM system installed on board.
- 5.2. Pelagic vessels were defined in the consultation as Refrigerated Sea Water/Chilled Sea Water (RSW/CSW) and freezer vessels, over 12 metres, fishing for small pelagic and blue whiting. The requirement to have an REM system on-board which complies with Scottish Government legislation will extend to all Scottish vessels, as well as other pelagic vessels from outside Scotland, fishing in Scottish waters.
- 5.3. Data from 2020 shows there were 22 vessels in the Scottish pelagic fleet, and around 155 non-Scottish vessels fishing for pelagic species in the Scottish Zone (though not necessarily landing in Scottish ports). The main species caught are mackerel, horse mackerel, herring, and blue whiting, with the catching season running from late summer to February, depending on species.

Q3. Issues on a level playing field basis

Q3: Are you aware of any issues we need to take account of when we apply REM across all pelagic fishing fleets fishing in Scottish waters on a level playing field basis?

- 5.4. Question 3 received 35 total responses – 21 from organisations and 14 from individuals – wherein 40% of participants agreed that they were aware of issues to be mindful of where REM is applied across all pelagic fishing fleets fishing in Scottish waters on a level playing field basis. 23% answered No, while 37% said they did not know. The latter response was slightly higher amongst organisations than individuals.

Issues to take into account when applying REM

- 5.5. Respondents outlined various issues to take into account when applying REM across all pelagic fishing fleets fishing in Scottish waters on a level playing field basis.
- 5.6. The need for data on and/or application to non-Scottish vessels, in order for these to all be held to the same standard, was commonly mentioned by respondents:

“As REM systems are essentially remotely monitored, it is important that all nations and administrations ensure their REM monitoring and enforcement is consistent with that in Scotland. The presence of an

REM system on a vessel is no guarantee the system is being used appropriately or adequately monitored. Data sharing between jurisdictions should be considered” [Organisation, Conservation]

- 5.7. Compliance was important to participants who felt that, in order to ensure a true level playing field, all fishing vessels operating in Scottish waters ought to comply with a REM requirement. Some noted that this should also be considered for the entire UK EEZ (Exclusive Economic Zone). Additionally, the ability to verify the proper operation of REM systems installed on non-Scottish vessels was deemed important.
- 5.8. The requirement for consistent surveillance and monitoring was raised by participants, whilst ensuring sufficient and timely assistance for REM system breakdowns was also a concern. In regard to the latter point, however, some sought assurances that, in the event of an unexpected equipment failure occurring whilst at sea, a vessel may complete its trip and not be instructed to return to port immediately to rectify the problem.
- 5.9. Similarly, respondents noted the breadth, and cost, of the (often specialist) equipment required for REM to work effectively. One noted that approximately 6-12 cameras, depending on vessel, would be necessary to successfully examine all potential discarding points, also noting that:

“Obtaining an independent estimate of bulk catch is also challenging and would require integration with net sensors, hopper scales, water displacement sensors (in RSW vessels), or fish pump and flow meter technology” [Individual]

Q4. Definition of pelagic vessels

Q4: Do you agree with the definition of pelagic vessels provided and are there any unintended consequences from using this definition?

- 5.10. Question 4 received 30 total responses - 20 from organisations and 10 from individuals. Overall, 57% of respondents agreed with the definition of pelagic vessels provided, whereas 43% disagreed.
- 5.11. Though few respondents offered additional comments, some felt that the definition of pelagic vessels provided was not clear in relation to target species. It was suggested that other species, such as the sand eel and Norway Pout be included in the definition. Others indicated that:

“The use of any net below 70 mm (in combination with the other criteria) would be sufficient for defining ‘pelagic’, regardless of the target species” [Organisation, Conservation]

- 5.12. One respondent was unsure as to why the definition provided did not appear to relate to any of the fleet segments defined in the Future Catching Policy (FCP) and felt that:
- “to have several different and overlapping ways to breakdown the fleet is confusing and nonsensical” [Organisation, Conservation]
- 5.13. Others felt that there could be more clarity around vessel types within the definition, particularly where it is not sufficiently precise to be certain of capturing all foreign vessels which target pelagic fish stocks in the Scottish sector – there were concerns that this, in turn, could provide an advantage to foreign vessels.
- 5.14. There were also calls for specialist vessels, namely freezer trawlers, to be specifically defined and recommendations that additional camera systems and/or monitoring sensors to cover various features – such as RSW tanks, grading systems, processing deck and freezing holds, in addition to the fishing operation - should be in place.
- 5.15. Another respondent observed a potential issue wherein the definition of the ‘pelagic sector’ as described in the proposal becomes conflated with ‘pelagic species’ or ‘pelagic quota’. Though they felt the distinction was made clear in the consultation, they underlined its future importance in allocating pelagic quotas to different fleet segments, as required by the 2020 UK Fisheries Act. They also argued for the potential of smaller vessels to access pelagic species/quota without having to meet the requirements of the definition of ‘pelagic sector’.

6. Timeline (Q5)

Q5: How much lead-in time should pelagic industry be given to prepare for compliance with the mandatory REM requirement? - Please provide details in the text box below

- 6.1. The consultation asked respondents to consider the appropriate lead-in time to allow the pelagic industry time to prepare for compliance with the mandatory REM requirement.
- 6.2. It is noted that unlike scallop dredge REM, using REM on pelagic vessels in Scottish waters is a new concept. The consultation document notes that pelagic REM is complex and that vessels to which the requirements would apply would need to source, produce, and install REM systems to meet the parameters required in the legislation.
- 6.3. Taking into account the complexities and the actions involved in the manufacture, purchase and installation of REM, the proposed lead-in time in the consultation document is around 12 months.
- 6.4. There were differing views among respondents in terms of the lengths of time that was appropriate for the pelagic industry to prepare for compliance with the mandatory REM requirement.

12 months

- 6.5. Many respondents agreed that 12 months sounded like an appropriate amount of time given the complexity. However, some who felt this was appropriate noted that the legislation would have to be introduced swiftly and that there would need to be consultation with the pelagic industry, non-UK vessels and REM manufacturers in order to enable implementation in this time. It was also noted that the degree of information included in the legislation would need to be sufficient to allow for REM system procurement and that there would have to be some leeway initially in terms of potential extensions.
- 6.6. The following quotes illustrate some of the views presented among those who felt 12 months was an appropriate amount of time:

“The proposed lead in time of 12 months sounds realistic. Meaningful consultation with the pelagic industry and REM manufacturers will be crucial to enable timely implementation.” [Organisation, Third Sector]

“The 12 months proposed appears adequate, however there should be modest allowance for extensions as and when required.”
[Organisation, Fishing Organisation]

- 6.7. Others felt that while 12 months was achievable that the Scottish Government should consider looking abroad for lessons learned from systems installed elsewhere in the world.

Less than six months

- 6.8. A small number of respondents expressed the view that the lead-in time should be less than six months stating that there should be no reason to wait 12 months and that it had already taken too long to arrive at this point.

36 months

- 6.9. A group of respondents felt that the minimum lead-in time should be 36 months rather than 12 months. The question referred to the pelagic industry, but some responses stated that they felt that the question was generic and with this in mind states that 36 months was reasonable for the following reasons:

- Complexity of the various fleet segments
- Current issues within the supply chain for acquiring electronic equipment
- The need for enhancing the quality of science and to allow for the release of a realistic Future Catching Policy

- 6.10. The following quote is illustrative of views expressed among those who stated that they felt a 36-month lead in time was necessary:

“Given this question is generic and not just applying to Pelagic vessels we would suggest that each fleet metier, as they are introduced to REM, should be given 36 months lead-in time. Fitting cameras onboard the limited number of pelagic vessels will be a significantly easier task than fitting cameras across other sectors where the number of vessels runs to the hundreds not the tens, as is the case with the pelagic fleet.” [Organisation, Fishing Organisation]

Wider points

- 6.11. Some respondents did not outline a timeline as such and instead stressed the importance of the need to consult with non-UK vessels, time for evaluating REM systems on the market and taking the required time to get the policy right rather than aiming for a specific timeline by which to implement. The following quotes help to illustrate some of these views:

“Discussions with third countries should be undertaken to ensure that whatever systems are used work with each other’s regulatory bodies. We would not want the situation whereby we need one system for Scottish waters and another for Norwegian or EU waters.” [Organisation, Fishing Organisation]

“The lead-in time should be the same for all vessels and should be sufficient to ensure that all the REM equipment requirements are in place and similar for all UK pelagic vessels.” [Organisation, Fishing Organisation]

“The mention of a specific lead-in time in the consultation document (12 months) is perhaps premature, as we have received no indication that non-Scottish fleets have been consulted on what REM systems would be appropriate for their various types of vessel. We suggest that the lead time is defined (and applicable to all vessels, without exception) once the technical specifications for necessarily different REM systems are established.” [Organisation, Fishing Organisation]

7. Benefits of REM in the pelagic sector (Q6)

Q6: Do you agree with the scientific and compliance benefits of REM for the pelagic fleet as set out in this document? Are there other benefits which you can consider, including to industry, the environment, or local communities?

Benefits outlined in consultation paper

- 7.1. The consultation paper outlined several scientific and compliance benefits from having REM on pelagic vessels.
- 7.2. For science, the benefits outlined included:
 - Additional verification that data collected via scientific programmes is valid allowing for confirmation that what is being caught is the same as what is being landed
 - To have certainty over the current landings data, it is important to know that no slipping or discarding is taking place
 - Being able to access additional data gathered by pelagic vessels as they subsample their catch at regular intervals would significantly add to the data sets available to scientists which would improve the reliability and resilience of scientific stock assessments and advice
- 7.3. For compliance purposes, the benefits outlined were that REM provides a system to demonstrate compliance with relevant legislation which would aid confidence that what has been caught has been retained. For pelagic vessels this would mainly be the landing obligation but also legislation on high grading, slipping of catch and misreporting. In order to demonstrate compliance REM needs to be able to confirm how much the vessel has caught and how much the vessel has landed.

Response to closed question

- 7.4. Respondents were asked whether they agreed with these scientific and compliance benefits and whether they could think of any other benefits for industry, the environment, or local communities.
- 7.5. In total, 34 respondents answered the closed element of the question with 74% saying that they did agree with the scientific and compliance benefits set out in the consultation (75% of individuals and 73% of organisations) while 26% did not agree with them (25% of individuals and 27% of organisations). Fishing organisations were less likely to agree with the scientific and compliance benefits set out in the consultation paper than conservation organisations.
- 7.6. For the open element of the question, 38 respondents provided a written response.

Agreement with benefits and further benefits

7.7. Many responses noted the scientific benefits of REM for the pelagic fleet. The potential for increased timeliness, richness and availability of data is noted in many responses.

7.8. Some note that the potential for this data has to be met with transparency and seek clarification on how data will be accessed and whether it will be available in an anonymised way beyond Scottish Government and to the broader research community or individuals. The following quote illustrate some of these views:

“The difference between a 1-2 hour polling interval and the 10 seconds offered by REM is huge as is the richness of the data. To me it seems under stated in the document. The opportunities these data give to the scientific community are enormous.” [Individual]

7.9. Some responses note that REM as a tool for data collection would allow for monitoring to ensure that stocks are being harvested sustainably and to minimise the potential negative impacts on the wider marine environment including sensitive species bycatch. However, it is noted that in order to meet this potential benefit that REM systems must be optimised to allow for collecting data to monitor sensitive species bycatch through positioning of cameras and that those reviewing the data have the right level of knowledge to capture the data needed for management purposes.

7.10. Relatedly, other responses illustrate the potential positive impacts of increased confidence in the supply chain as the evidence collected would allow fishers to be able to demonstrate that their fishing activities are sustainable which gives consumers greater confidence when selecting seafood to buy. The following quote sums up these views:

“ We agree there will be significant scientific and compliance benefits to the use of REM by the pelagic fleet. It can also be used: for data collection to ensure stocks are being harvested sustainably; to identify the scale of issues, such as sensitive species bycatch and whether the mitigation measures put in place are addressing the issue; it should provide greater transparency around fishing operations, where and how fish are being caught and in so doing give confidence to consumers about the sustainability of the fish they are buying.” [Organisation, Third Sector]

7.11. Respondents who agreed with the scientific and compliance benefits outlined tended to focus less on additional compliance benefits.

7.12. However, it was noted by a few respondents that for compliance to be effective that legislation needs to ensure that the information collected by REM is available to all enforcement authorities and that there are sufficient

systems in place to ensure the large volumes of data are appropriately accessible and analysed.

- 7.13. A group of responses saw the compliance benefits as secondary to the scientific benefits in terms of REM as result of the fact that there is an opportunity to create a functional catching policy which would promote a culture of compliance.

Disagreement with benefits outlined

- 7.14. A number of reasons were given by respondents who did not agree with the scientific and compliance benefits outlined in the consultation paper.
- 7.15. Some responses stated that they felt that Scottish and many non-Scottish pelagic vessels fishing in Scottish waters already collected significant scientific data for use in ICES stock assessment. Therefore, some responses queried whether the additional scientific benefits set out for REM in the consultation document were overstated and queried whether concerns had been raised by ICES or other bodies in relation to the veracity and reliability of existing sampling programmes and data collection. Responses also included queries on what additional data Marine Scotland foresee being captured by REM. The following quotes illustrates this point of view:

“we are very unclear about the additional scientific benefits claimed for REM. It is suggested in the consultation document that REM systems can boost the reliability and resilience of existing data-gathering, yet to our knowledge no reservations have been expressed by ICES or any other competent body over the reliability or resilience of existing sampling programmes.” [Organisation, Fishing organisation]

“the scientific benefits specified within the consultation document and accompanying BRIA are overemphasised and at best aspirational over the longer term. The Scottish pelagic sector already operates a comprehensive self-sampling scheme which we understand is capable of delivering the majority of the scientific data and benefits specified.” [Organisation, Fishing organisation]

- 7.16. Some responses indicated that they felt that the benefits outlined could only be achieved if REM was applied to all vessels, while others felt that the requirement for the pelagic fleet was biased and not in the spirit of a level playing field.
- 7.17. Among those who disagreed with the benefits outlined some felt that the compliance element was more prominent than the scientific and some responses sought to understand what the trigger for inspection of REM data would be.

8. The pelagic REM System (Q7-9)

- 8.1. The consultation document discussed various technical details and requirements for proposed REM systems. Section 3.4.1 outlined the general information that the consultation expected REM systems to provide:
- Confirmation of fishing activity taking place and location of fishing activity
 - Weight of fish caught, retained, and landed (providing there are no disparities between these figures will give confidence that no discarding has taken place)
 - Species composition of fish caught
 - Video footage of the sub-sampling for length and weight undertaken by the crew
- 8.2. The consultation document stated that cameras and sensors will be necessary to collect this data, with net sensor data possibly being used to increase confidence in the data for both science and compliance purposes.
- 8.3. Section 3.4.2 then outlined in more detail the proposed minimum REM system capabilities for pelagic vessels. They should be able to:
- Provide visual verification of fishing activity taking place, along with sensor data to indicate shooting and hauling of nets. Sensors would be placed to indicate shooting and hauling of nets.
 - Provide visual verification via cameras that no discarding or slipping is taking place. It would also be helpful to position an additional camera(s) over the side of the vessel where the net is brought alongside to monitor bycatch of vulnerable species e.g., cetaceans.
 - Provide visual confirmation of pump rate (via cameras) to aid with verification of catch data and estimation of weight of catch.
 - Provide visual confirmation of separators to determine which tanks are receiving what fish at what time.
 - Provide visual data via positioning of camera above the vessel's subsampling station, to include confirmation of length and weight (grams) data of the subsample in order to supplement the scientific data set.
 - Provide GPS information – position information should be recorded at a minimum frequency of every 10 seconds, meaning this is more reliable than VMS information. This would allow the interpretation of location data and would aid in deterring and detecting misreporting.

- Provide pump rates – with the manufacturer's specification on the maximum that can be pumped in a set time, the camera visual will provide data for how long pumping was in operation. Between these two figures, the maximum number of fish expected to have been brought on board can be calculated and compared against reported figures.
 - Provide visual data by positioning the camera above any open channel/separator in order to estimate species composition and collect length and/or weight data if possible or as candidate footage for Machine Learning (ML) development.
- 8.4. The consultation proposed that the above specifications would allow REM to meet benefits highlighted in Section 3.3 of the paper, summarised as:
- Improved data for scientific purposes and analysis
 - Improved tool for compliance purposes to assess conformity with existing fishing legislation and rules

Q7. Benefits of system outlined

Q7: Do you agree that the system as outlined in section 3.4.2 (System specification) should be able to meet the benefits described in Section 3.3?

- 8.5. Question 7 received 36 total responses – 24 from organisations, 12 from individuals. The overall level of agreement that the system as outlined in the consultation should be able to meet the benefits outlined (72%) did not vary greatly from the level of agreement among organisational (71%) and individual responses (75%).
- 8.6. Of those that provided additional comments (30 of the 36 total responses), some took issue with the benefits that were outlined in section 3.3. Some echoed sentiment from Q1 of feeling policed and others argued that the focus should be on science.
- 8.7. The responses that directly answered the question about whether section 3.4.2 matched the ambitions of section 3.3 highlighted some possible issues in reaping benefits from the technology.

Standardisation challenges

- 8.8. Many argued that standardisation across different vessel types and from different countries would be challenging and could undermine the level playing field principle.

“The Association seeks assurances that REM systems for Scottish vessels and 3rd country vessels have the capability of reporting identical information, including the format the data is delivered in, and the timeframe for delivering that information is the same.”
[Organisation, Fishing Organisation]

“Sounds like a very complex specification to standardise. It will have to adapt to every different boat.” [Individual]

Specific technical components

- 8.9. Regarding specific technical components of the system, several respondents pointed out the need for additional cameras and others were sceptical of the relevance of pump rates as a measure and what role machine learning would play. The following response outlines these issues in more detail:

“We cannot see how a camera system using machine learning/artificial intelligence can monitor and determine the composition, length, weight etc of pelagic fish entering a fish/water separator. This is purely due to the rate of fish going through the system. Some vessels separator arrangements would not work well with this either due to their design. [...]

Using pump rates provided by fish pump manufacturers would be highly inaccurate. They will only be able to provide maximum theoretical pump rates of the unit. Pumping fish on board can also be highly variable. This is dependent on a number of factors. There could be an unknown restriction that would severely impact the pump rate. This could be up to 75% slower. Each cod end also pumps at a slightly differing rate compared to another. Even if it is of the same design. This is entirely independent of the fish pumps capability. Fish pump systems also operate on a variable pressure control. Lower pressure is used to pump slightly slower for higher quality fish. Therefore, the pressure of oil going to the pump (or in terms of electric pumps – RPM of the impeller) would have to also be recorded. This would be extremely difficult to record. Each fish species also pumps at a different rate.” [Organisation, Fishing Organisation]

Observation for compliance

- 8.10. Finally, upon the collection of data, several responses expressed their views with regards to a perceived lack of planning put forward in the consultation for who, or what, will observe the videos for compliance and how this will be enforced to achieve the benefits identified in section 3.3.

“The long list of system specification described in pages 15-16 will generate a truly huge data stream. The amount of time to observe one haul would be considerable, so there are concerns about the amount of actual replay monitoring that can be accomplished.

Given budgetary constraints how will Marine Scotland resource staff, with the required expertise, to review the vast amount of REM data collected? What is a realistic target figure for analysis? Furthermore –

How would trips be selected? Who would undertake the analyses?”
[Organisation, Fishing Organisation]

“The effectiveness of REM is not about whether the REM system has collected the data or not it is more about how the data is reviewed, how results are communicated back to fishers, clear penalties for breaking any rules, and consistent enforcement. Once you stop reviewing the footage correctly or dealing with issues in a timely and consistent manner, the assumption becomes that no one is looking at the data, which removes the incentive to comply.” [Individual]

Q8. Specific operational problems

Q8: Do you foresee any specific operational problems with the system specification set out within the document?

8.11. Question 8 received 34 total responses – 23 from organisations and 11 from individuals. Overall, 59% of respondents foresee specific operational problems with the system specification, with this rising to 65% of organisational responses and falling to 45% of individual responses. Fishing organisations were more likely to say that they could foresee specific operational problems with conservation organisations less likely to say this.

Operational problems

8.12. Within open responses provided, a number of specific operational problems were highlighted. It was generally mentioned that there could be unexpected issues/teething problems with the system, and concerns were raised about how long a boat could continue to fish if the system malfunctions during their voyage.

‘Whereas we accept that safeguards need to be in place to prevent against gaming, our members hold the view that it would be unreasonable to insist that vessels return to port on the occasion where REM equipment on board fails. For offshore vessels this would be a tiresome obligation and we suggest that in such cases vessels are allowed to complete their trips with the proviso that it must not leave port with defective gear.’ [Organisation, Fishing Organisation]

8.13. On the other hand, several respondents also expressed the view that a vessel should return to port if there is a fault with the system.

“The system must be tamperproof and the legislation should require that, should the system stop working, the vessel must return to port and the certified engineer be called to return it to operation.”
[Organisation, Conservation]

8.14. Concerns about the application of this system to the factory operation of freezer trawlers were also raised by various organisations.

“There is no mention in the consultation document of the REM specifications envisaged for the factory element of freezer-trawler operations. This is a significant omission and would need to be remedied before the Scottish fleet could have confidence that a level playing field had been secured.” [Organisation, Fishing Organisation]

“[We] believe that, before moving to the next stage beyond consultation it is imperative that Marine Scotland specifies how the factory operation onboard freezer trawlers will be fully documented” [Organisation, Fishing Organisation]

Wider points

8.15. Beyond these themes that were repeated by several respondents’ open answers, a number of other issues were mentioned by smaller groups of respondents:

- Transmission issues at sea
- Cost of operation
- Data security/privacy concerns
- Lack of technical assistance
- Unclear duties of care for REM equipment
- Insufficient information about GPS standards
- Monitoring of videos
- Difficult to standardise across Scottish and non-Scottish boats
- Lack of incentives for implementation.

Q9. Net Sensor Data

Q9: Do you believe that we should require net sensor data as part of the system specification at this point?

8.16. Question 9 received 33 responses in total – 21 from organisations, 12 from individuals. 64% of responses were in favour of requiring net sensor data as part of the system specification, with this breaking down to 67% of organisations, and 58% of individuals. Fishing organisations were much more likely to disagree that net sensor data should be included as part of the system specification at this point while conservation organisations were much more likely to agree.

Arguments for and against net sensor data

- 8.17. Clear arguments for and against the use of net sensors emerged from the open answers to question 9. The key argument in favour was that this would provide more data for science and to improve sustainability. Many of these responses came from conservation organisations, such as the two quoted below:

“Appropriate net sensors would be important for monitoring the quantities and identifying the species of fish entering the net. Such sensors also have the potential to monitor the presence of vulnerable species such as sharks and cetaceans. Consideration should be given to grant aiding the additional installation costs of such sensors.”
[Organisation, Conservation]

“Net sensors will provide valuable data on fishing activity patterns and importantly, CPUE. Excluding such data at the outset will mean that the benefits described in Section 3.3 will not be achievable, and the fisheries will not be fully documented.” [Organisation, Conservation]

- 8.18. A couple of responses hedged their answers advocating for this technology by suggesting it be voluntary initially. One other respondent called for a separate consultation on this topic.
- 8.19. However, several arguments were put forward against this suggestion. The most popular reason by far was that net sensors would provide inaccurate data.

“Most vessels are now using wide bags to improve the quality of the fish while retained in the net. Skippers state there is a huge fluctuation on the ability of the catch sensor to accurately tell how much fish has been caught in a wide bag, making this a very unpredictable source of information now.” [Organisation, Fishing Organisation]

“It only provides you with a bulk estimate of catch, but to what accuracy and to what level. If net sensors are only accurate to within 25% then it seems pointless. It would be better to introduce alternative technology to capture more accurate assessments, such as hopper, crane scales, flow meters, displacement sensors, laser scanners for volume estimates etc. Also, what happens when a net sensor fails or is lost at sea, would this invalidate all data for the haul or would the vessel be required to replace it at sea or stop fishing and dock until it is fixed or replaced? Compliance would suddenly be reliant on the reliability of the builder of the net sensor.” [Individual]

“Net sensor data would not be an appropriate indicator of catch levels. Each vessel sets their catch sensors differently and the quantities caught between vessels can be significant. Even the catch levels of

differing cod ends on board a particular vessel can vary significantly. The newer style of “wide” cod ends are also extremely difficult to gauge catch level. The net sensor data that is displayed on the catch monitoring systems would also have to be output to a stand-alone system. The catch monitoring software may not have this capability and the system manufacturer may not be willing to make this option available in their system. The overall REM system would also have to be designed to receive the catch sensor info and then store it appropriately.” [Organisation, Fishing Organisation]

- 8.20. Additionally, it was argued that installing REM is already going to be expensive, adding a requirement for net sensors would exacerbate this. Furthermore, some respondents mentioned that this may not be relevant to all fishing methods and therefore could create an unlevel playing field.

9. REM for scallop dredge vessels (Q10)

9.1. The consultation paper discussed the Scottish Government's intention to make it a mandatory requirement for all scallop dredge vessels active in Scottish waters to have a fully operational REM system on-board. The consultation explained that the proposed new legislative instrument would be focussed on REM systems being fully operational on vessels carrying and/or deploying scallop dredge gear in the Scottish zone, and therefore needed to be considered alongside the current provisions (relating to gear restrictions) in the Regulation of Scallop Fishing (Scotland) Order 2017⁴(the 2017 Order), including:

- Restrictions on number of scallop dredges for king scallops (Articles 4 and 5 of 2017 Order).
- REM requirements (Article 6 of the 2017 Order)

Q10. Application of REM to scallop dredge vessels

Q10: Are you aware of any issues we need to take account of when we apply REM requirements consistently across all scallop dredge vessels in the Scottish zone, regardless of scallop species being targeted or number of dredges being deployed?

9.2. Question 10 received 38 total responses - 28 from organisations and 10 from individuals. 34 closed responses were collected, wherein 53% of respondents agreed that they were aware of issues to be mindful of when applying REM requirements consistently across all scallop dredge vessels in the Scottish zone, regardless of scallop species being targeted or number of dredges being deployed.

9.3. There was some support for installing REM across all scallop dredge vessels where this provides accurate mapping of where commercial scallop dredging is taking place, with some respondents noting that REM will provide more accurate information than previous 'flawed' systems, such as VMS. Some respondents thought the improved spatial data from REM could be used to refine the existing boundaries of protected areas.

9.4. A few respondents stated a need for incentives – and a fairness in how these are distributed. One noted a current incentive for REM fittings on vessels able to fit 10 dredges per side, highlighting that it would be unfair to require smaller vessels, which cannot fit any more dredges per side, to install REM without also providing them with an incentive.

⁴ [The Regulation of Scallop Fishing \(Scotland\) Order 2017 \(legislation.gov.uk\)](https://www.legislation.gov.uk)

9.5. Effective data monitoring and data sharing between jurisdictions was also deemed critical. Given that REM systems are remotely monitored, respondents felt it essential that all nations and administrations with fishing vessels in Scottish waters ensure their monitoring of REM systems and enforcement is consistent with that in Scotland. There were further recommendations that vessels should not leave ports without confirming that cameras and sensors are operative, to prevent misuse, as some highlighted that:

“the presence of an REM system on the vessel is no guarantee the system is being used appropriately or adequately monitored”
[Organisation, Conservation]

9.6. Several respondents described a lack of consideration for bycatch in scallop dredging, indicating that the system should also be able to monitor and quantify flatfish bycatch associated with the fishing method, which was considered economically valuable.

9.7. Many participants emphasised the need to consider practicalities around data use and installation, whilst others noted that privacy concerns have been raised by some smaller scallop boats where their small size and confined conditions mean there is limited space onboard for filming. Similarly, there were questions as to whether it would be reasonable to impose the cost and responsibility of the continuous operation of REM on to small businesses, as well as concerns around adequate lighting for video-recording at night and sufficient data coverage for the transmission of data. Again, respondents pointed out that procedures for the failure of REM equipment on voyages, including those undertaken by scallop dredge vessels, should be clear and noted that an immediate return to port, if necessary, would be particularly difficult for larger offshore nomadic vessels.

9.8. The importance of using REM was further qualified by the suggestion that dredgers ought to be able to have access to their own data to defend any allegations against them, such as those around dredging through static gear or breaking access rules. Some respondents put forward that more than two cameras were required to monitor bycatch, as:

“all they can do is report fishing effort (time in and out of water), estimate beam length and count dredges, so no cameras are available to monitor catches or discards” [Individual]

9.9. More broadly, others used this response box to reaffirm their broad support or opposition to REM, as well as calls for an effective, non-discriminatory ‘level playing field’ whereby the entire scallop dredge fishing fleet operating in Scottish waters should be required to have REM.

10. REM system specification for scallop dredge vessels (Q11-12)

- 10.1. The consultation paper also discussed the REM requirements set out in Article 6 of the 2017 Order, which the Scottish Government considered have proven an effective tool for monitoring the scallop vessels within scope of the provision.
- 10.2. The current REM requirements include winch sensors and at least 2 digital cameras. Sensors are mounted on the vessel to capture location and activity data. GPS and other data such as speed, direction and winch movement detection are provided to ascertain vessel location and what fishing activities the vessel is engaged in at that location. The two cameras are positioned to monitor all fishing activity on location.
- 10.3. The Scottish Government proposed that these established REM provisions would be replicated in the new legislative instrument (but their application would be widened to ensure that all vessels carrying and/or deploying scallop dredge gear in the Scottish zone have a fully operational REM system installed on-board that meets the standards required).
- 10.4. At present, the legislation specifies video imagery of 1080 pixels per frame, though this does not allow for continuous video streaming and only still images, making analysis difficult. Thus, the consultation paper sought views on a new requirement that the REM system must have the ability to record footage to a minimum of 5 Frames Per Second (FPS).

Q11. Alignment with existing REM requirements

Q11: Do you agree that REM requirements on vessels carrying and/or deploying scallop dredge gear in the Scottish zone should be broadly aligned to existing REM requirements provided for in Regulation 6 of the 2017 Order?

- 10.5. Question 11 received 32 total responses - 25 from organisations and 7 from individuals. 30 closed responses were collected, wherein the vast majority (80%) of respondents agreed that REM requirements on vessels carrying and/or deploying scallop dredge gear in the Scottish zone should be broadly aligned to existing REM requirements provided for in Regulation 6 of the 2017 Order.
- 10.6. Organisation respondents were more likely to agree (86%) that the REM requirements should be broadly aligned to existing REM requirements than individual respondents (67%). All of the fishing organisations who responded to this question agreed that the requirements should be broadly aligned to the 2017 Order.

Alignment with requirements

- 10.7. Many of those who agreed with the requirements commented on their familiarity with the 2017 Order and the usefulness of aligning further REM requirements with those provided for in Regulation 6.
- 10.8. However, other respondents felt that the requirements need to be expanded, with special consideration needed around the use of additional equipment or other features. As seen in response to other questions in the consultation, there were repeated suggestions that REM requirements ought to employ more cameras; in this case, it was felt that more cameras should be used to allow catch data, ETP (Endangered, Threatened and Protected) interactions, safety and crew welfare, and discard opportunities to be monitored.
- 10.9. Others recommended that work first be done to strengthen intentions and research plans for catch composition and asked whether the requirements would cover bycatch, which was noted as an issue in the parallel FCP consultation.
- 10.10. One respondent stated that answers given depend on the interpretation of 'broadly aligned.' A few of those agreed with the requirements did so on the basis that at least four cameras, which can record video imagery of at least 5 Frames Per Second (FPS) at a resolution of 1080 pixels per frame with 5-15 FPS where needed, are utilised in practice. GPS data and other data on speed and direction was also considered important in order to better enable responsible operators to demonstrate legal practice.
- 10.11. A few respondents felt that an assessment of the effectiveness of existing REM technology requirements (given the recent voluntary rollout of REM use on scallop dredge vessels in Scotland) would be useful, so that any learnings from this rollout could be accounted for in any new REM requirements.

Dissatisfaction with proposal

- 10.12. Some respondents were dissatisfied with the proposal where they felt that REM requirements on vessels carrying and/or deploying scallop dredge gear in the Scottish zone were poorly thought out and failed to reflect the reality of challenges with technology, data coverage, and general conditions at sea.

Wider points

- 10.13. Again, the adoption of a level playing field approach to all vessels was a recurring feature in responses.

Q12. Changes to REM system specification

Q12: Do you consider that any other changes (in addition to the ability to record footage to a minimum of 5 Frames per Second) should be made to the REM system specification?

- 10.14. Question 12 received 31 total responses - 23 from organisations and 8 from individuals. 28 closed responses were collected, wherein most (71%) respondents considered there to be changes which should be made to the REM system specification (in addition to the ability to record footage to a minimum of 5 Frames per Second).
- 10.15. There was some level of overlap between Questions 11 and 12 where respondents began offering notes and suggestions alongside their dis/agreement with the proposal.

Benefits of proposed changes

- 10.16. Several respondents, though not replying directly to the question, felt positively about the potential for changes to the REM system specification (including the ability to record footage to a minimum of 5 Frames Per Second) to improve the quality, and speed up the analysis of data – particularly where this can be accommodated by cameras already installed. In addition, the higher accuracy in terms of times for shooting and hauling was deemed a benefit of the proposed system.

Changes to proposed specification

- 10.17. A need to specify a minimum optical resolution per area being observed, as well as an onus to engage in detailed discussions on system specification with industry before postulating what the performance should be, were also mentioned by respondents, some of whom noted a lack of available detail as to what is required. One respondent raised a question around inconsistencies in system recording and their possible implications on prosecutions:

“Would Marine Scotland be able to prosecute vessels because the time of shooting on the REM system does not match the e-log? As mentioned before, the e-log system is inherently poor” [Organisation, Fishing Organisation]

- 10.18. Respondents tended to offer practical ideas around REM system technicalities, including provision to enable vessels to view the images and data captured (in ‘read only’ form) to verify that they are sufficient quality for their intended purpose and that the system is working. The potential for unfair prosecutions were again of note, as one individual expressed:

“through no fault of the vessel, a lens could be dirty or obscured, a light could be out, a camera could have moved, a cable broken and so on. Potentially prosecuting a skipper when they had no means of knowing that they were non-compliant is unfair” [Individual]

10.19. Points around data transfer efficiency and numbers of operational cameras were also raised, particularly where the fastest possible data transfer rates and multiple I/O [Input/Output] Ports were considered vital in allowing more than one card (or disk) to be downloaded at once by those reading and archiving the data on land. Others recommended that higher frame rates, such as 24 Frames Per Second, may assist with machine learning for identification of bycatch species. The same respondent went further in highlighting that setting the colour space on cameras and having durable colour reference charts installed on vessels would aid species identification.

10.20. There was broad consensus that the REM system should be fit for purpose – to ensure compliance with the landings obligation and observe bycatch of both quota and non-quota species, for example. However, they recognised that more work must be undertaken to determine the increased cost of the necessary technology and ensure that the appropriate financial support is available to enable its introduction, with one respondent proposing that the system be trialled prior to a large-scale rolling-out:

“Trial it in areas where mobile coverage is standard at 1mbps and ensure the system works in these conditions before rolling out”
[Individual]

10.21. In line with this, a few respondents mentioned that any additional changes to specifications should be a matter of further consultation, so as to maintain confidence in REM systems. It was also suggested that REM system specification be expanded to assist with scientific monitoring, in line with fisheries dependent data collection requirements from Marine Scotland Science.

11. REM for large demersal vessels (Q13)

Q13: What is your view in relation to the various options outlined for deployment of REM to parts of the demersal fleet as outlined in Section 5: REM for large demersal vessels?

- 11.1. The consultation also sought views on deployment of REM to parts of the fishing fleet beyond the pelagic and scallop vessels. Specifically, for large demersal vessels.
- 11.2. One option set out in the consultation was the use of a reference fleet. The consultation explained that this would likely involve placing an REM system on a limited and defined number of Scottish vessels to provide reference data for both compliance and science purposes. The data collected from the reference fleet could be used to provide a benchmark for compliance with rules and regulations, though the reference fleet would have to be representative of the full fleet in order to do this. Data for REM equipped vessels in the reference fleet could then be compared to non-REM vessels.
- 11.3. It was noted that this option would likely only apply to Scottish vessels and could act as a precursor to wider rollout. This would mean that in the initial stages that there would be no level playing field between Scottish and non-Scottish vessels.
- 11.4. Another option considered in the consultation was a broader rollout of REM for all vessels fishing as part of specific fleet segments. It was argued that the approach could have the advantage of providing greater coverage and would ensure that REM could be delivered on a level playing field basis. This option would require significantly more lead-in time.
- 11.5. The consultation sought views on each of these options and on whether there were any alternative options which should be considered. There is also reference made to a desire to take a co-management approach to the rollout of REM and to discuss the outcome of the consultation with the Fisheries Management and Conservation Group (FMAC) and to consult more widely if required.
- 11.6. Question 13 received 43 responses (11 individuals and 32 organisations).

Roll-out with a reference fleet

- 11.7. Respondents offered differing views on the proposed option of using a reference fleet for initial rollout for large demersal vessels.

- 11.8. There were a group of responses that believed a reference fleet was a sensible way forward ahead of a wider roll-out. These responses were largely among fishing organisation and public sector organisations.
- 11.9. Some advantages of the reference fleet given in these responses included that a reference fleet trial would provide useful data on levels of bycatch, allow for assessing the adoption of REM and the positive and negative factors of implementation ahead of a wider rollout in the demersal fleet.
- 11.10. Others noted that in terms of the demersal sector that observer schemes and/or reference fleets were the preferred means for evidencing compliance given that they also have added benefits of additional biological data collection that are not available through the use of REM alone.
- 11.11. It was also noted by one response that the effectiveness of a reference fleet would depend on its structure and careful consideration would be required in order to ensure that the reference fleet did not develop into just a fleet monitoring tool.
- 11.12. One response cites the Norwegian reference fleet as an example of the potential for reference fleets to progress fisheries monitoring beyond the standard observer scheme. The quote below provides the case for this:

“As is the case with the Norwegian reference fleet, this would:

- Provide long term quality controlled biological sampling of catches from commercial fisheries.
- Document fishing effort and species composition of the total catches, including bycatch, discards and non-commercial species.
- Allow access to undertake ‘on demand’ sampling for a range of species.
- Contribute to improved cooperation and understanding between fishermen, scientists and managers.” [Organisation, Fishing Organisation]

- 11.13. Another theme in relation to the implementation of a reference fleet was that it could damage the level-playing field and would leave reference Scottish vessels at a disadvantage relative to their counterparts fishing in the same waters, particularly if REM were being used for compliance purposes. For example:

“We believe that the reference fleet approach is the best approach, especially where the information gathered supports management decisions on fishing operations and stock assessments.

That said, our members hold the firm belief that if Scottish vessels are subject to REM in their own waters, then vessels flying other flags

should be subject to the same conditions, a position we set out earlier in our response.

There can be some deviation from the above position if REM was used for scientific purposes only. If this was not the case, then we would view REM as being used for compliance purposes and insist that all vessels flying a foreign flag are subject to a condition that requires REM when operating within the Scottish zone.” [Organisation, Fishing Organisation]

11.14. However, other responses reflect opposition to the option of using a reference fleet. Some opposition was on the basis that the use of a reference fleet may lead to issues of over-representing those who are already compliant unless Marine Scotland select the reference fleet, or it was randomly selected while others felt that only a full roll-out was acceptable in spite of the additional lead-in times.

Broader roll-out

11.15. Many responses felt that a broad roll-out was preferable to using a reference fleet. While it was noted that with this option longer lead-in times are required and that this comes with increased complexity that a broader roll-out maximises the benefits in terms of confidence, compliance with regulations and maintaining a level playing field. The following quotes illustrate some of these views:

“A broad rollout of REM to all vessels in the demersal trawl fleet would be the preferred option. Despite longer lead in times, this would permit the maximum benefits in terms of confidence in compliance with regulations, greatly improved knowledge of discards and in providing a level playing field for all fishers in Scottish waters.” [Organisation, Conservation]

“REM can work on all class of vessel so if it is affordable for Marine Scotland to undertake the video and data reviews and enforce any infringements detected, then all vessels should have REM. the data will improve science and management and reduce illegal discarding. There is no other way to enforce a Landing Obligation or similar management tool.” [Individual]

“Effective application of REM in high-risk demersal fleet segments would help address both the discarding of undersize fish and high-grading of certain species, both of which contribute to overfishing.” [Organisation, Conservation]

11.16. Some respondents questioned why the roll-out was targeted to the pelagic sector in the first place and that for the benefits set out in the consultation

to be realized that REM would have to be extended across the whole demersal trawl fleet.

11.17. Others felt that the roll-out should also apply to the gillnet and longline fleets on the basis that REM could be used to monitor vessels in order to provide an understanding of impact and where mitigation can be applied it should and be monitored for use and efficacy. It was argued that prioritisation of vessels that pose an elevated risk to protected species would align the Scottish Government with the approach of fisheries managers in New Zealand, who have been phasing in REM through their Integrated Electronic Monitoring and Reporting System (IEMRS).

11.18. Among some respondents the need for co-design and management of any roll-out was expressed as vital.

Other views raised

11.19. Some other views were raised in relation to the deployment of REM among respondents in response to Question 13.

11.20. Concerns were raised around compliance and the severity of any measures introduced by the roll-out of REM and whether REM has a place as an enforcement tool in the face of choke risks.

11.21. Others raised concerns about the proposals and questioned the science behind some of the arguments made in favour of REM in the consultation document and noted that the application of REM in the industry would be unworkable given the level of uncertainty in relation to individual stock levels.

11.22. The cost of the roll-out whether that be for a reference fleet or broader roll-out were raised as issues in some responses, while others queried the definition of large vessels used and some raised potential issues in relation to the technology required for effective roll-out of REM.

12. Business Regulatory Impact Assessment (Q14)

Q14: Taking into account the Business Regulatory Impact Assessment (BRIA) supplementing this consultation, do you have any comments or views which you would like to put forward?

- 12.1. The consultation document was supplemented by a draft Business Regulatory Impact Assessment (BRIA).⁵ Respondents were asked to express any comments or views on the BRIA. In total, 22 respondents expressed views on the BRIA.
- 12.2. Some respondents noted the draft nature of the BRIA prior to making comments and suggested that the BRIA should be discussed at FMAC.
- 12.3. Other respondents used this question to reiterate points made throughout the consultation.
- 12.4. In terms of comments relating to the BRIA, some raised doubts over some of the scientific assertions made within the BRIA and queried whether the improved scientific data for REM would improve that already collected in the pelagic fleet.
- 12.5. There was discussion around costs with some responses alluding to resource constraint within the industry and for Marine Scotland. It was noted that the BRIA did not give costs for the analysis and interpretation of REM data, and this raised doubts over the extensiveness of any analysis that will take place. Another response raised SD cards should be included in specification costs and that the type required for REM would have to be high capacity which are expensive and harder to acquire.
- 12.6. The view was also raised in one response that the Scottish Government was not best placed to make assertions on competitiveness and that private businesses were in a much better position to judge what they had to improve market position and profile consumers.
- 12.7. A group of responses expressed the view that any costs to the industry, taxpayer, or combination of both was outweighed by the benefits of the roll-out with REM. And one response stated that the BRIA should estimate the cost to society of failure to implement the landings obligation, high grading and slipping alongside an inability to fully comply with ICES advice in the absence of a fit for purpose REM system across all fleet segments.

⁵ [Link to previously published partial BRIA - gov.scot](#)

Annex 1: List of consultation questions and response counts

Question		Number of responses	% of total responses (base=48)
1	Do you agree that Scottish vessels required to use REM in the Scottish zone should also have REM operational when operating outside of the Scottish zone?	46	96%
	Please provide details in the text box below	44	92%
2	Do you foresee any barriers to vessels meeting the costs associated with the REM systems themselves? This includes upfront and ongoing costs.	45	94%
	Please provide details in the text box below	42	88%
3	Are you aware of any issues we need to take account of when we apply REM across all pelagic fishing fleets fishing in Scottish waters on a level playing field basis?	35	73%
	Please provide details in the text box below	29	60%
4	Do you agree with the definition of pelagic vessels provided and are there any unintended consequences from using this definition?	30	63%
	Please provide details in the text box below	25	52%
5	How much lead-in time should pelagic industry be given to prepare for compliance with the mandatory REM requirement? - Please provide details in the text box below	40	83%
6	Do you agree with the scientific and compliance benefits of REM for the pelagic fleet as set out in this document? Are there other benefits which you can consider, including to industry, the environment, or local communities?	34	71%

	Please provide details in the text box below	38	79%
7	Do you agree that the system as outlined in section 3.4.2 (System specification) should be able to meet the benefits described in Section 3.3?	36	75%
	Please provide details in the text box below	30	63%
8	Do you foresee any specific operational problems with the system specification set out within the document?	34	71%
	Please provide details in the text box below	36	75%
9	Do you believe that we should require net sensor data as part of the system specification at this point?	33	69%
	Please provide details in the text box below	36	75%
10	Are you aware of any issues we need to take account of when we apply REM requirements consistently across all scallop dredge vessels in the Scottish zone, regardless of scallop species being targeted or number of dredges being deployed?	34	71%
	Please provide details in the text box below	38	79%
11	Do you agree that REM requirements on vessels carrying and/or deploying scallop dredge gear in the Scottish zone should be broadly aligned to existing REM requirements provided for in Regulation 6 of the 2017 Order?	30	63%
	Please provide details in the text box below	32	67%
12	Do you consider that any other changes (in addition to the ability to record footage to a minimum of 5 Frames per Second) should be made to the REM system specification?	28	58%
	Please provide details in the text box below	31	65%
13	What is your view in relation to the various options outlined for deployment of REM to parts of the demersal fleet as	43	90%

	outlined in Section 5: REM for large demersal vessels ? - Please provide details in the text box below		
14	Taking into account the Business Regulatory Impact Assessment (BRIA) supplementing this consultation, do you have any comments or views which you would like to put forward? - Please provide details in the text box below	22	46%

Annex 2: Frequency analysis of closed questions

Question 1

Table A2.1- Do you agree that Scottish vessels required to use REM in the Scottish zone should also have REM operational when operating outside of the Scottish zone?

Respondent Type	Yes		No		Don't Know		Total	
	n	%	n	%	n	%	n	%
Individuals	11	73%	3	20%	1	7%	15	100%
Organisations	15	48%	11	35%	5	16%	31	100%
Organisation type								
Fishing organisations (including representative bodies and fishing industry)	5	25%	10	50%	5	25%	20	100%
Conservation	6	86%	1	14%	0	0%	7	100%
Public Sector	2	100%	0	0%	0	0%	2	100%
Third Sector	1	100%	0	0%	0	0%	1	100%
Other	1	100%	0	0%	0	0%	1	100%
Total	26	57%	14	30%	6	13%	46	100%

Question 2

Table A2.2- Do you foresee any barriers to vessels meeting the costs associated with the REM systems themselves? This includes upfront and ongoing costs.

Respondent Type	Yes		No		Don't Know		Total	
	n	%	n	%	n	%	n	%
Individuals	7	47%	4	27%	4	27%	15	100%
Organisations	22	73%	5	17%	3	10%	30	100%
Organisation type								
Fishing organisations (including representative bodies and fishing industry)	17	85%	2	10%	1	5%	20	100%
Conservation	3	50%	2	33%	1	17%	6	100%
Public Sector	2	100%	0	0%	0	0%	2	100%
Third Sector	0	0%	0	0%	1	100%	1	100%
Other	0	0%	1	100%	0	0%	1	100%
Total	29	64%	9	20%	7	16%	45	100%

Question 3

Table A2.3- Are you aware of any issues we need to take account of when we apply REM across all pelagic fishing fleets fishing in Scottish waters on a level playing field basis?

Respondent Type	Yes		No		Don't Know		Total	
	n	%	n	%	n	%	n	%
Individuals	4	29%	6	43%	4	29%	14	100%
Organisations	10	48%	2	10%	9	43%	21	100%
Organisation type								
Fishing organisations (including representative bodies and fishing industry)	7	58%	0	0%	5	42%	12	100%
Conservation	2	40%	1	20%	2	40%	5	100%
Public Sector	1	50%	0	0%	1	50%	2	100%
Third Sector	0	0%	0	0%	1	100%	1	100%
Other	0	0%	1	100%	0	0%	1	100%
Total	14	40%	8	23%	13	37%	35	100%

Question 4

Table A2.4- Do you agree with the definition of pelagic vessels provided and are there any unintended consequences from using this definition?

Respondent Type	Yes		No		Total	
	n	%	n	%	n	%
Individuals	5	50%	5	50%	10	100%
Organisations	12	60%	8	40%	20	100%
Organisation type						
Fishing organisations (including representative bodies and fishing industry)	6	50%	6	50%	12	100%
Conservation	3	60%	2	40%	5	100%
Public Sector	1	100%	0	0%	1	100%
Third Sector	1	100%	0	0%	1	100%
Other	1	100%	0	0%	1	100%
Total	17	57%	13	43%	30	100%

Question 6

Table A2.5- Do you agree with the scientific and compliance benefits of REM for the pelagic fleet as set out in this document? Are there other benefits which you can consider, including to industry, the environment, or local communities?

Respondent Type	Yes		No		Total	
	n	%	n	%	n	%
Individuals	9	75%	3	25%	12	100%
Organisations	16	73%	6	27%	22	100%
Organisation type						
Fishing organisations (including representative bodies and fishing industry)	7	58%	5	42%	12	100%
Conservation	6	86%	1	14%	7	100%
Public Sector	1	100%	0	0%	1	100%
Third Sector	1	100%	0	0%	1	100%
Other	1	100%	0	0%	1	100%
Total	25	74%	9	26%	34	100%

Question 7

Table A2.6- Do you agree that the system as outlined in section 3.4.2 (System specification) should be able to meet the benefits described in Section 3.3?

Respondent Type	Yes		No		Total	
	n	%	n	%	n	%
Individuals	9	75%	3	25%	12	100%
Organisations	17	71%	7	29%	24	100%
Organisation type						
Fishing organisations (including representative bodies and fishing industry)	10	71%	4	29%	14	100%
Conservation	5	71%	2	29%	7	100%
Public Sector	1	100%	0	0%	1	100%
Third Sector	1	100%	0	0%	1	100%
Other	0	0%	1	100%	1	100%
Total	26	72%	10	28%	36	100%

Question 8

Table A2.7- Do you foresee any specific operational problems with the system specification set out within the document?

Respondent Type	Yes		No		Total	
	n	%	n	%	n	%
Individuals	5	45%	6	55%	11	100%
Organisations	15	65%	8	35%	23	100%
Organisation type						
Fishing organisations (including representative bodies and fishing industry)	10	77%	3	23%	13	100%
Conservation	4	57%	3	43%	7	100%
Public Sector	1	100%	0	0%	1	100%
Third Sector	0	0%	1	100%	1	100%
Other	0	0%	1	100%	1	100%
Total	20	59%	14	41%	34	100%

Question 9

Table A2.8- Do you believe that we should require net sensor data as part of the system specification at this point?

Respondent Type	Yes		No		Total	
	n	%	n	%	n	%
Individuals	7	58%	5	42%	12	100%
Organisations	14	67%	7	33%	21	100%
Organisation type						
Fishing organisations (including representative bodies and fishing industry)	5	45%	6	55%	11	100%
Conservation	6	86%	1	14%	7	100%
Public Sector	1	100%	0	0%	1	100%
Third Sector	1	100%	0	0%	1	100%
Other	1	100%	0	0%	1	100%
Total	21	64%	12	36%	33	100%

Question 10

Table A2.9- Are you aware of any issues we need to take account of when we apply REM requirements consistently across all scallop dredge vessels in the Scottish zone, regardless of scallop species being targeted or number of dredges being deployed?

Respondent Type	Yes		No		Total	
	n	%	n	%	n	%
Individuals	8	62%	5	38%	13	100%
Organisations	10	48%	11	52%	21	100%
Organisation type						
Fishing organisations (including representative bodies and fishing industry)	4	40%	6	60%	10	100%
Conservation	4	57%	3	43%	7	100%
Public Sector	2	100%	0	0%	2	100%
Third Sector	0	0%	1	100%	1	100%
Other	0	0%	1	100%	1	100%
Total	18	53%	16	47%	34	100%

Question 11

Table A2.10- Do you agree that REM requirements on vessels carrying and/or deploying scallop dredge gear in the Scottish zone should be broadly aligned to existing REM requirements provided for in Regulation 6 of the 2017 Order?

Respondent Type	Yes		No		Total	
	n	%	n	%	n	%
Individuals	6	67%	3	33%	9	100%
Organisations	18	86%	3	14%	21	100%
Organisation type						
Fishing organisations (including representative bodies and fishing industry)	11	100%	0	0%	11	100%
Conservation	4	57%	3	43%	7	100%
Public Sector	1	100%	0	0%	1	100%
Third Sector	1	100%	0	0%	1	100%
Other	1	100%	0	0%	1	100%
Total	24	80%	6	20%	30	100%

Question 12

Table A2.11- Do you consider that any other changes (in addition to the ability to record footage to a minimum of 5 Frames per Second) should be made to the REM system specification?

Respondent Type	Yes		No		Total	
	n	%	n	%	n	%
Individuals	6	60%	4	40%	10	100%
Organisations	14	78%	4	22%	18	100%
Organisation type						
Fishing organisations (including representative bodies and fishing industry)	5	56%	4	44%	9	100%
Conservation	5	100%	0	0%	5	100%
Public Sector	2	100%	0	0%	2	100%
Third Sector	1	100%	0	0%	1	100%
Other	1	100%	0	0%	1	100%
Total	20	71%	8	29%	28	100%

Annex 3: List of organisational respondents

In total, 33 organisational responses were submitted. Three responses completed the consultation as individual responses but gave an organization name, these are marked with an asterix. These are listed below.

Conservation (7)

Blue Marine Foundation
Fishing forward
Future Fisheries Alliance⁶
The Open Seas Trust
Our Seas Coalition
The Shark Trust
Sustainable Inshore Fisheries Trust

Fishing organisations (including representative bodies and fishing industry) (24)

Aberdeen Fish Producers Organisation Ltd
Adenia Fishing LTD
Clyde Fishermen's Association
Communities Inshore Fisheries Alliance
Eastern England Fish Producers Organisation
Hooktone
Joseph Robertson (Aberdeen) Ltd
Klondyke Quota Management Group
Macduff shellfish
Mallaig and North-West Fishermen's Association
North East of Scotland Fishermen's Organisation
Orkney Fish Producers Organisation
Scottish Creel Fisherman's Federation
Scottish Fishermen's Federation
Scottish Fishermen's Organisation
Scottish Pelagic Fishermen's Association
Scottish White Fish Producers Association
Shetland Fishermen's Association and Shetland Fish Producers Organisation
Sunbeam Fishing Ltd
The National Federation of Fishermen's Organisations
usan salmon fisheries ltd
West of Scotland Fish Producers Org
Western Fish Producers' Organisation Ltd
Western Isles Fishermen's Association

⁶ The Future Fisheries Alliance is a coalition of WWF, RSPB, and Marine Conservation Society. The submission was supported by National Trust for Scotland and Whale and Dolphin Conservation.

Public Sector (2)

Isle of Man Government - Department of Environment, Food and Agriculture
Comhairle nan Eilean Siar

Retailer (1)

Marks and Spencer*

Third Sector (1)

National Trust for Scotland

Other (1)

modus vivendi



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