



Department
for Environment
Food & Rural Affairs

Fisheries: Summary of responses to remote electronic monitoring call for evidence

England

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Contents

| | |
|---|----|
| Introduction | 4 |
| Summary of responses | 4 |
| Q1. Where are the best and worst examples of remote electronic monitoring policy and usage across the world? And, what are your experiences or views of the Fully Documented Fisheries scheme? | 4 |
| Q2. Do you think it is right to maximise the benefits from any remote electronic monitoring systems so they are not just an enforcement tool, but could also be used to monitor our fisheries and collect scientific data? Have you any evidence or suggestions on how best to achieve potentially multiple outcomes from the technology? | 5 |
| Q3. If there were to be further trials of remote electronic monitoring in England what should their focus be on? For example, which type of vessel, fleet segment, gear type or location would be most appropriate and why? | 7 |
| Q4. Depending on the outcome of further trials, do you think the remote electronic monitoring programme should be mandatory or voluntary? | 8 |
| Q5. If remote electronic monitoring were to become a mandatory requirement for any or all vessels fishing in English waters should there be a lead in time to allow industry to prepare for this? Please provide any details or supporting evidence on how long this should be or whether you think it should be different for different parts of the fleet. | 9 |
| Q6. Are there any vessels, gears, fleets, or locations that you feel remote electronic monitoring would not be appropriate for? If so, please provide further information | 10 |
| Q7. Do you have information on the financial costs of remote electronic monitoring, both initial and ongoing costs, and whether this delivers value for money (VFM)? | 11 |
| Q8. Do you think there is a need to support vessels using remote electronic monitoring and, if so, what do you think this support should look like? For example, financial support, training, quota etc. | 12 |
| Q9. Are you aware of any other technologies which could also be used to monitor our marine environment and/or enforce fisheries management rules and/or data collection purposes? | 13 |
| Q10. Is there anything else you would like to raise at this stage? | 14 |
| Technical information | 15 |

Introduction

Defra ran a 6 week call for evidence between 19 October and 30 November 2020. This was to collect views on expanding the use of remote electronic monitoring (REM) to help manage and monitor our fisheries and marine environments in England.

Summary of responses

In total we received 37 responses, 31 through the online platform (Citizen Space) and 6 submitted directly. Respondents included:

- producer organisations (POs)
- individual fishermen
- scientific institutes
- environmental organisations

We explore some important themes from these responses below.

Q1. Where are the best and worst examples of remote electronic monitoring policy and usage across the world? And, what are your experiences or views of the Fully Documented Fisheries scheme?

This question received 30 responses.

In response to the best examples of REM, respondents highlighted 12 locations, 5 specific schemes and 3 types of technology. The most mentioned schemes were in New Zealand (which was highlighted most often), Australia, Denmark, England and Scotland. These were generally highlighted as good schemes because:

- they had clear objectives
- industry had been engaged throughout
- government support was provided
- of the scale of the programmes - for example, 350 systems were installed in a year in New Zealand.

However, some respondents did not mention any best-case examples, with some saying there were no good examples.

Respondents provided a lot of information on schemes globally and suggested it would be helpful to review these schemes to identify good practices.

When asked about bad examples, respondents generally focused on aspects of REM programmes they felt were negative rather than specific schemes. This included issues such as cost to the vessel owner and concerns over privacy.

There were 6 responses to the question about the English Fully Documented Fisheries (FDF) scheme. Respondents generally felt a scheme that fully documented catches would be beneficial, particularly for scientific monitoring and enforcement purposes. The respondents felt the previous schemes were generally successful in enforcing the discard rules and recording full catches. It was noted that the scheme was voluntary and so operated using incentives (in this case reserve quota). It was also noted that as the scheme did not include vessels under 12 metres, these vessels were not represented in the trials.

Q2. Do you think it is right to maximise the benefits from any remote electronic monitoring systems so they are not just an enforcement tool, but could also be used to monitor our fisheries and collect scientific data? Have you any evidence or suggestions on how best to achieve potentially multiple outcomes from the technology?

This question received 35 responses.

77% of respondents felt that REM systems, and the data they produce, should be used for both science and enforcement purposes. Only 7% wanted REM to be used solely as an enforcement tool. Most of those who wanted these systems to be used for scientific and enforcement purposes thought the data should be optimised to get the most out of the datasets. Some of the respondents, who preferred enforcement only, suggested it may require additional costs to deliver these additional outputs.

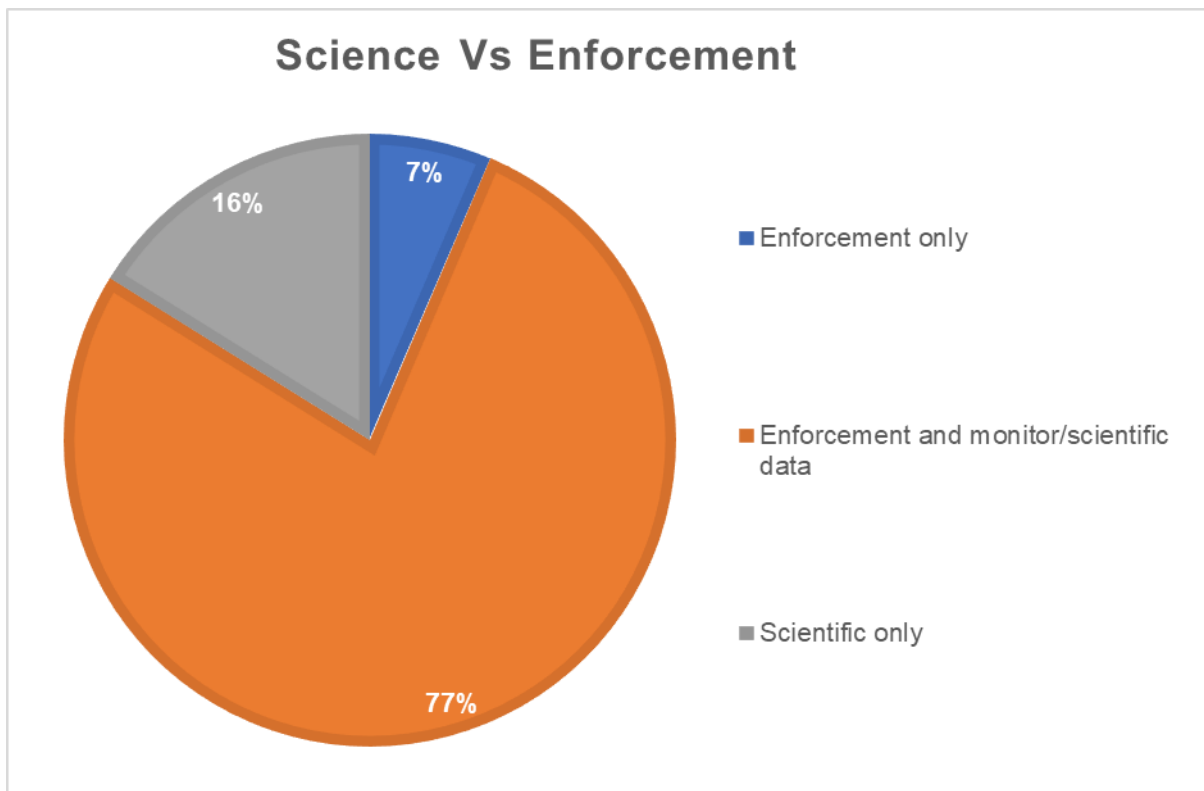


Figure 1 - The graph shows the percentage of respondents that opted for their preferred use of REM data.

The 2 most common uses highlighted were REM collecting information on endangered or bycatch species (including on catch rates) and for wider fisheries management purposes. The respondents felt REM could support fisheries management by giving information on the health of stocks, composition of wanted and unwanted catches and discard rates.

It was clear from the responses that different groups favoured different uses. For example, it was predominately environmental and scientific groups who suggested using REM to monitor bycatch and endangered species. Industry predominantly wanted REM to be used for both enforcement and scientific purposes and did not want REM to be used for enforcement only.

Respondents suggested several other potential uses for REM including:

- gathering weather data – 2 responses
- improving health and safety and crew safety – 4 responses
- vessel security – 1 response
- record bycatch – 8 responses
- wider compliance – 3 responses
- recording sustainable fisheries – 1 response
- offering a level playing field – 1 response
- monitoring landing and factory processing – 2 responses
- identifying spatial and temporal patterns – 1 response
- recording bird activity – 2 responses

- manging and recording discards – 2 responses
- providing consumer confidence – 2 responses
- general fisheries management – 8 responses
- recording accurate catch data – 6 responses

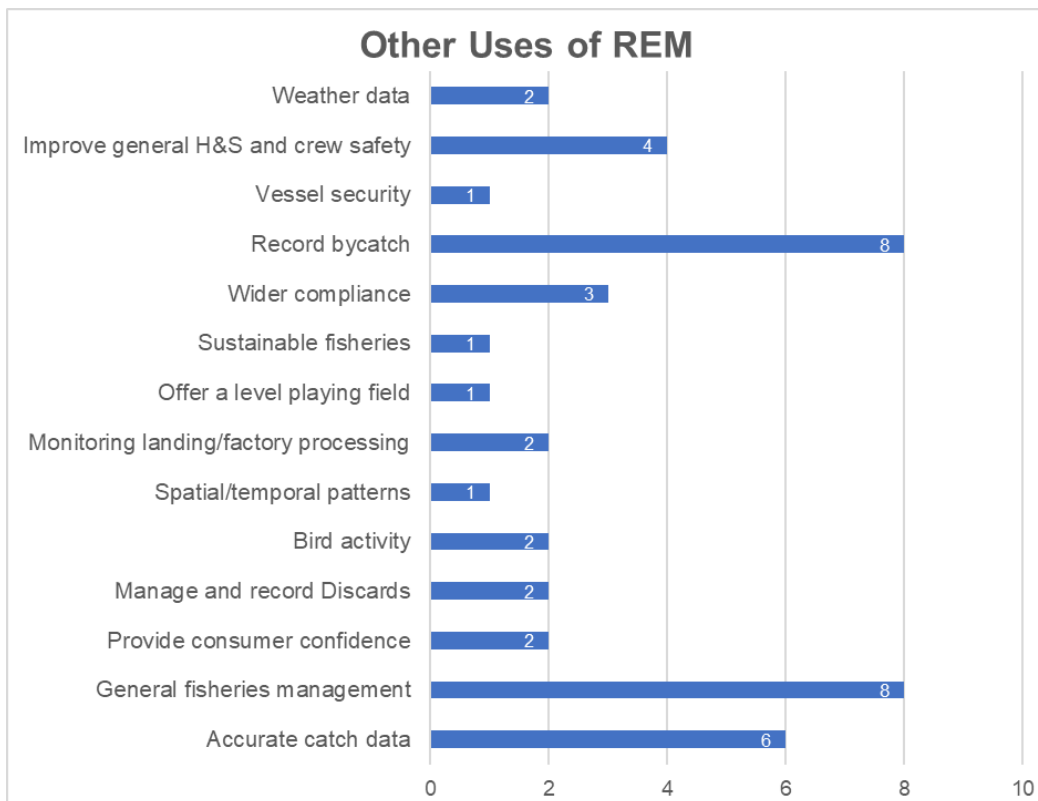


Figure 2: The graph shows the other uses of REM suggested by respondents.

Q3. If there were to be further trials of remote electronic monitoring in England what should their focus be on? For example, which type of vessel, fleet segment, gear type or location would be most appropriate and why?

This question received 33 responses.

There were 4 respondents who stated that further trials were not required because they believed the existing trials had shown that REM worked and suggested we move straight to implementation.

The remaining 29 respondents raised several options for what further trials should focus on.

Vessel type

There was no consensus on vessel types for any future trials. Respondents suggested trials on both under and over 10 metre vessels.

Gear type

43% of respondents suggested all gear types would benefit from further trials. 19% specified further trials should be conducted on trawlers and 19% suggested gill netters due to the suggested high risk for bycatch and discarding.

Functionality and use of REM systems

Seven of the respondents mentioned the need to conduct tests on the functionality and use of the REM systems. This included, but was not limited to:

- the location of cameras
- how to use cameras alongside sensors
- how to transfer, download and store the data.

Location

Four respondents specifically mentioned trials by location. However, there was no consensus in the locations mentioned. Respondents suggested trials could be conducted outside the North Sea, in English waters or across UK waters (working with the devolved administrations).

Respondents also suggested that any trials should publish results, so findings could be shared and built on.

Q4. Depending on the outcome of further trials, do you think the remote electronic monitoring programme should be mandatory or voluntary?

This question received 35 responses.

65% of responses suggested that any scheme should be mandatory. Respondents suggested that under a voluntary scheme, vessels who adopt early may be at a disadvantage compared to those that are not in the scheme. This is because those who are not in the scheme could still have the temptation to, for example, discard smaller fish. They also suggested that under a voluntary scheme reference fleets may not be a true representation of the whole fleet.

Those who did favour a voluntary approach (19%) cited concern over fishermen's privacy and the cost to each vessel. Most of the responses that wanted REM to be voluntary also suggested including incentives, such as increasing quota, to get more vessels involved.

The remaining responses suggested a mixture of a mandatory and voluntary scheme. Suggestions included schemes which were voluntary for UK vessels but mandatory for EU vessels, voluntary for vessels under 10 metres but mandatory on larger vessels, mandatory in high risk or environmentally important areas (such as Marine Protected Areas) but voluntary elsewhere.

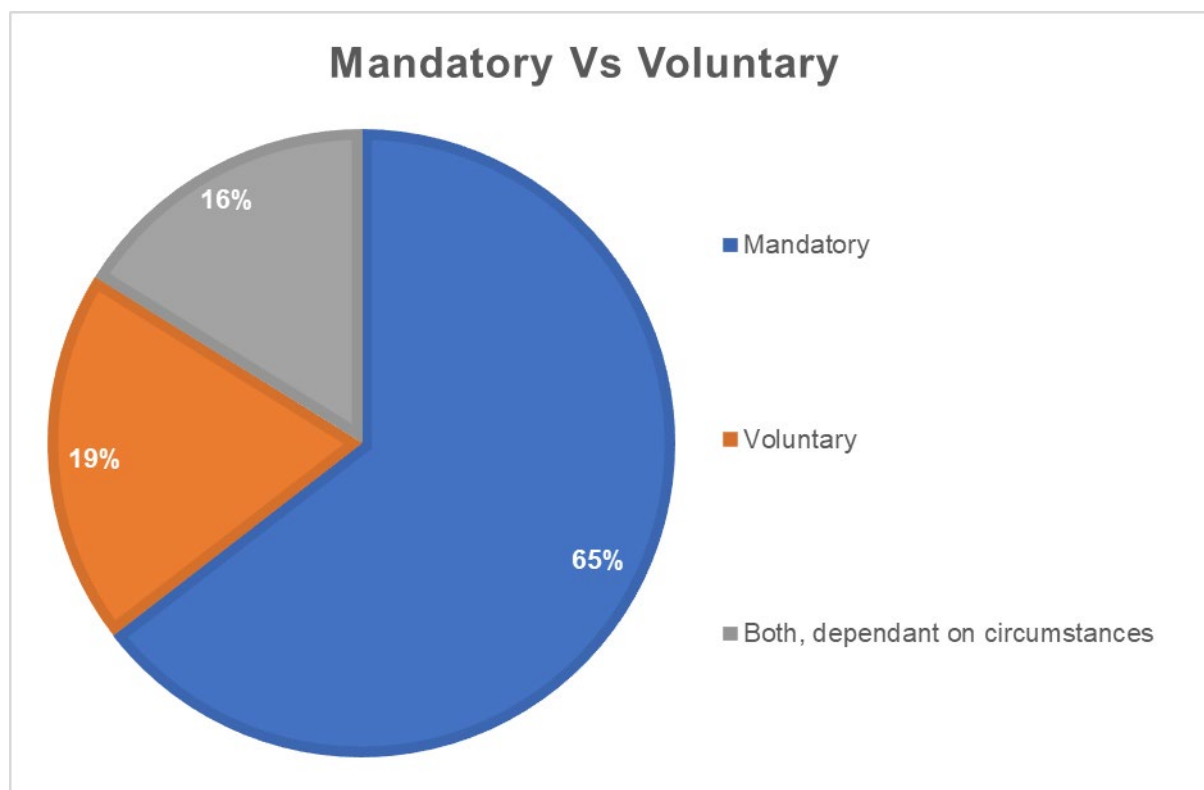


Figure 3 - The graph shows the percentage of responses that thought REM should be either mandatory, voluntary or both, dependant on circumstances.

Q5. If remote electronic monitoring were to become a mandatory requirement for any or all vessels fishing in English waters should there be a lead in time to allow industry to prepare for this? Please provide any details or supporting evidence on how long this should be or

whether you think it should be different for different parts of the fleet.

This question received 32 responses.

66% of respondents felt there should be a lead in time under a mandatory REM. These respondents covered the fishing industry, environmental Non-Governmental Organisations, retailers, Government agencies and producer organisations. The lead in time most suggested by respondents was between 1 and 2 years. There was no differentiation in the lead in time needed for different parts of industry, with respondents suggesting this would be standard.

Respondents mentioned several considerations in relation to determining the length of any lead time. This included considering the time needed to:

- find an appropriate supplier and source different quotations for equipment
- install and test equipment
- develop suitable guidance documents
- train crew how to operate and maintain the systems
- train those using the data - this covered both industry and those managing the systems, for example, the Marine Management Organisation
- work with industry and allow them to prepare for the changes more generally

Q6. Are there any vessels, gears, fleets, or locations that you feel remote electronic monitoring would not be appropriate for? If so, please provide further information

This question received 31 responses. Of these responses there were only:

- 13 that specifically mentioned vessel type
- 13 that specifically mentioned fleet type
- 2 that mentioned gear types
- 1 that mentioned location

Most of these responses stated that some form of REM (such as Vessel Monitoring System only, sensors or cameras and so on) would be appropriate on all vessels. Although, 5 of those that responded to vessel type suggested that REM would not be suitable for under 10 metre vessels due to vessel limitations (size, electrical power and so on). They also suggested that the overall impact on fish stocks and the marine environment of these smaller vessels was lower and did not warrant a monitoring system like this. Conversely, some respondents highlighted that these limitations for smaller vessels (size, electrical power and so on) have been overcome in past trials and solutions could be found.

There was little agreement in the remaining responses, with the following areas all suggested as not being appropriate:

- Vessel type - Vessels without shelter, non-motorised vessels and leisure vessels
- Fleet type - Whelk potters, gill netters, longline, trawlers, scallopers, bottom set nets

Q7. Do you have information on the financial costs of remote electronic monitoring, both initial and ongoing costs, and whether this delivers value for money (VFM)?

This question received 22 responses.

There were 10 responses that commented on initial costs, but there was no consensus on these responses. Respondents suggested initial costs that ranged from £2,000 to £15,000 per vessel. A few of the responses specified their costs were for either a 4 or 6 camera set-up, however most responses did not specify what type of system they were costing for, which could explain the variation.

One response included a detailed quotation from a company that was the clearest example of costings from the call for evidence. The quotation showed a one-off cost of €6,500 and consisted of:

- black box VX Unit including 2 hard drives with 2TB of memory (mechanical) and a wireless modem
- 3 2MP cameras
- ethernet switch port
- 13 inch HDMI touch screen
- wireless keyboard
- DC/DC converter (24V-12V)
- GPS & GSM antennas

The same quotation also set out additional licensing costs including:

- a personal analyser licence - €3,000 per year
- machine analyser licence - €4,000 per year
- server licence - €6,500 per year

Five responses commented on potential ongoing costs. Out of these, 3 simply indicated that there were ongoing costs to consider but did not provide any estimates of these. The other 2 suggested annual maintenance costs of £500 per vessel and monthly data transfer costs of £30. There were also general comments on ongoing costs for watching the camera footage and analysing the data, with one respondent suggesting an annual salary of £25,000 for one analyst to watch 10% of footage.

More generally, respondents highlighted a range of costs that needed to be considered. These include:

- the upfront cost of the system itself, and any replacement systems
- installation, maintenance and servicing
- data transfer and storage
- licences for any supporting systems
- reviewing the camera footage

There were 18 responses regarding value for money. The majority of these (17) felt that REM was good value for money, with many also commenting that the cost would reduce in time as the technology improves. One respondent noted that value for money would depend on whether the footage was reviewed and used for its intended purpose.

Q8. Do you think there is a need to support vessels using remote electronic monitoring and, if so, what do you think this support should look like? For example, financial support, training, quota etc.

This question received 30 responses.

The respondents all agreed that some level of support would be required. The most common response (22) was financial support, suggesting either part or full funding from the government would be needed. Some respondents felt that funding should be provided to cover the initial upfront costs. It was thought this would speed up implementation and help those vessels that might not be able to afford a full set-up. However, any replacement equipment required, should be covered by fishermen.

16 respondents suggested that training for fishermen should be provided for example, a general understanding of the equipment, its maintenance and repair of minor faults. In general, respondents suggested that some level of training for fishermen was important to build support and ensure smooth implementation. 8 respondents also suggested an increase in quota was needed as an incentive.

The other types of support mentioned by respondents can be seen in Figure 4 that includes:

- financial – 22 responses
- technical – 2 responses
- training – 16 responses
- quota – 9 responses

Respondents noted that support was more likely to be needed at the start of any programme.

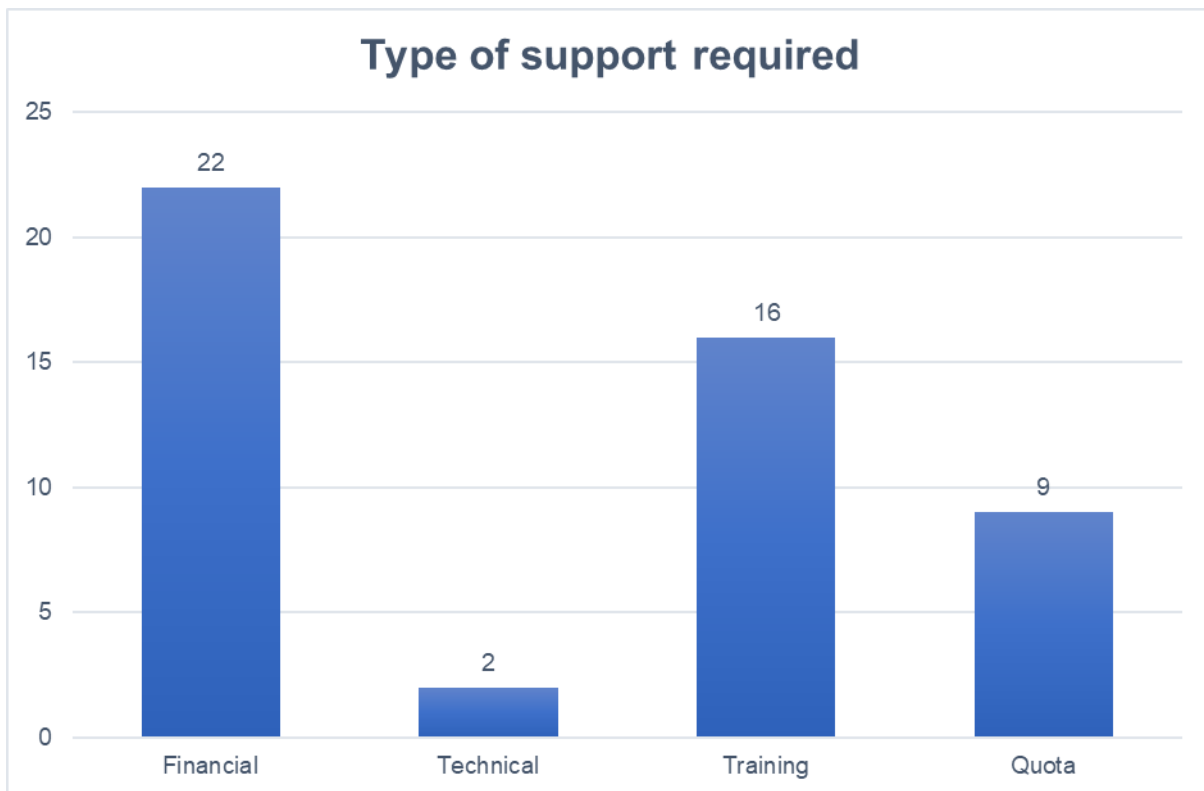


Figure 4 - The graph shows the range of support that the respondents thought was required.

Q9. Are you aware of any other technologies which could also be used to monitor our marine environment and/or enforce fisheries management rules and/or data collection purposes?

This question received 27 responses.

9 of the respondents felt there was not any other technology that could monitor the marine environment or enforce fisheries more effectively than REM, suggesting that other technologies could not provide the same degree of continuous data collection, accountability and transparency.

Some respondents did suggest alternatives to REM, such as VMS and observers, suggesting the type of monitoring system should be linked to the policy objectives. For example, if the objective is to record the location of vessels then a VMS system could be an effective solution.

There was some debate over the benefit of human observers vs technology. Two respondents thought technology could not replace the work of human observers, on the basis that observers could more accurately identify fish species and juvenile fish. Others believed that REM was a sufficient replacement for observers as it was a neutral and auditable solution which they felt delivered better value for money.

There was a suggestion that machine learning (or AI) could be used alongside REM to make it more effective. It was felt that machine learning could support species identification.

Figure 5 shows the other potential technologies suggested by respondents. These have been grouped into general buckets. For example, aerial surveillance includes:

- drones
- satellite
- infrared
- synthetic aperture radar

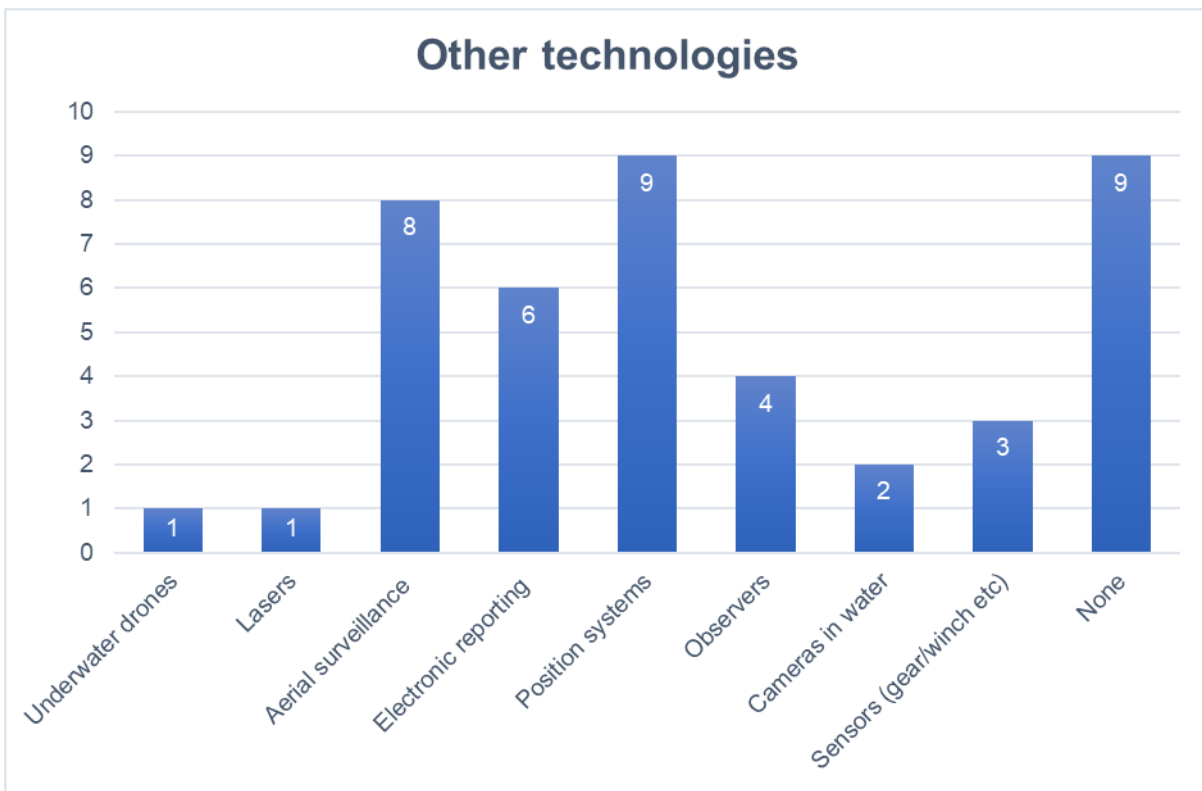


Figure 5 - The graph shows all the other potential technologies that the respondents felt could also help monitor the marine environment and enforce fisheries management.

Q10. Is there anything else you would like to raise at this stage?

Many respondents used this opportunity to highlight or reinforce a number of issues they felt were important.

Most respondents felt that some form of REM would be a useful tool in fisheries management and should be used more in the future and this should be phased in with appropriate lead in times. There were conflicting comments on the type of monitoring and where it would be appropriate.

To make sure any programme of REM usage is effective clear objectives need to be developed from the outset. Respondents felt that REM had the potential to deliver multiple objectives including:

- enforcement
- accurate catch recording, including a specific benefit in recording bycatch and discard rates
- collecting additional scientific data on the health of fish stocks

Collaboration with industry was also a core theme across most responses. It was suggested that working with industry would encourage participation (if a scheme was voluntary), support implementation and help deliver a more effective scheme.

Many respondents raised concerns over privacy. For example, they suggested that the placement of cameras needs to be carefully considered to avoid crew sleeping areas. They also raised concerns over data protection, indicating the importance of data being stored safely and making sure it was only used for the intended purpose.

For a scheme to be successful it is important that the footage is effectively reviewed and used for its intended purpose. Many respondents noted that enforcement and scientific institutes are not currently set up to review and manage this sort of footage, so this needs to be considered in the development of any scheme.

There were also several comments relating to the location and set up of cameras so that they correctly capture different types of information. For example, if the cameras were being used to monitor rates of bycatch they would need to be located so they can see the nets as they come out of the water to make sure anything that falls out is also visible to the camera. Some also noted that it was important that, once set up, the systems could not be interfered with.

Different parts of the fishing industry also highlighted some specific concerns, including ensuring problems with systems could be fixed quickly and that fishing could be restricted if systems were broken.

Technical information

Please note that the graphs presented are based on an interpretation of the themes arising from the free-text questions. All responses are included within the graphs. The number of responses to this call for evidence means that these results are not necessarily representative of the views of stakeholders more broadly.