



Report for the fourth meeting of the Clean Catch National Advisory Board – 11 March 2026

Online



Overview

- This report details discussions and outcomes of the meeting of the Clean Catch National Advisory Board (NAB) held 11 March 2026.
- Meeting aims were to:
 - Provide updates on and discuss Remote Electronic Monitoring (REM).
 - Provide an update on and discuss REM in the EEFP0 North Sea Trial in terms of approach and challenges.
 - Obtain advice and insights from the NAB on the current approach to seabird interaction and bycatch data analysis.
- Comments by NAB members are not attributed.
- Accompanying meeting slides can be found [here](#).

Outcomes

- The NAB **noted** the updates.
- The NAB **discussed** the development and implementation of REM for fisheries, including its policy landscape and key opportunities and challenges.
- The NAB **advised on** the approach to seabird interactions and bycatch data analysis.
- **NAB members were invited to** continue to contribute advice and suggestions on the current approach to seabird interaction and bycatch data analysis.

In attendance

NAB members:

- Al Kingston (University of St. Andrews)
- Bernadette Butfield (RSPB)

- Bex Allen (Seal Research Trust)
- Brendan Godley (University of Exeter)
- Dale Rodmell (EEFPO)
- David Warwick (Seafish)
- Emma Plotnek (Fishing into the Future)
- Jack Renwick (standing in for Ali Hood) (The Shark Trust)
- Mike Roach (standing in for Mike Cohen) (NFFO)
- Rebecca Lyall (MSC)
- Rob Whiteley (Defra) – NAB Chair
- Ruth Williams (The Wildlife Trusts)
- Russell Leaper (IFAW)
- Sarah Dolman (EIA and Chair of WCL bycatch group)

Additional attendees:

- Rebecca Lamb (Cefas)
- Ellinor Brett (Defra)

Clean Catch consortium team:

- Alasdair Davies (Arribada Initiative)
- Ben Tutt-Leppard (Arribada Initiative)
- Emily Duncan (Apex)
- Emily Roebuck (Cefas)
- Emma Kelman (Defra)
- Georgia Wells (Mindfully Wired)
- Joanna Murray (Cefas)
- Matt Gollock (ZSL)
- Milly Oakley (MMOC)
- Sarah Adams (Mindfully Wired)

Apologies were received from the following NAB members: Andrew Pascoe (fisherman), David Stevens (fisherman) and Per Berggren (Newcastle University). The meeting recording was shared with these members, providing an opportunity for them to input post-meeting.

Job titles and affiliations for all NAB members can be found on the [Clean Catch website](#).



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1. Welcome and introductions – Rob Whiteley (Defra and NAB Chair)

The chair opened the meeting with a word cloud poll on NAB members’ aspirations and concerns regarding REM. The following responses were received:

- Need to use for more than compliance
- Not “plug and play”
- Essential technology
- Under-resourced
- Useful in connection with mitigation trials
- Potential, but some outstanding issues
- Needs rolling out urgently as a statutory measure
- Continuous
- Vital for data
- Lots of potential, but not there yet

1. REM policy landscape overview – Elinor Brett (Defra)

Presentation summary

- Remote Electronic Monitoring (REM) is relevant to the UK legislative framework for fisheries, and is in the process of being considered or implemented across the national fisheries administrations.
- An early adopter project has just been completed on pelagic freezer trawler vessel Frank Bonefaas H72. The trial involved 14 cameras and reaped key learnings on installation, data sharing and transfer, and other REM protocols.
- The technical aspects of REM are the ‘tip of the iceberg’, with other necessary work such as objective setting, analysis, funding, and legal agreements being more time consuming.



- Defra are keen to invest in and embed REM in bycatch mitigation efforts.

NAB discussion

- What are Defra’s next steps to address the backlogs that can occur with analysis, including the planned resource distribution between human and Artificial Intelligence (AI) analysis?
 - Defra explained that as AI cannot yet replace human analysis, they will take a phased approach as they develop protocols, emphasising that the process will never be entirely AI led and even analysing slightly more data using REM would be considered an improvement in bycatch monitoring.
 - Defra also noted that more resources would improve the development and the speed of REM roll-out, however, these resources will be difficult to obtain.
- Are there any plans to make REM mandatory to increase the speed of uptake in fisheries?
 - Defra gave reassurance that while the long term goal is to make REM mandatory in priority fisheries, the voluntary phase is important to allow the fishing industry time to adapt gradually.
- An emerging theme is that it seems relatively easy to secure funding for testing of a novel mitigation device, but more difficult to get funding to complete the community engagement that is crucial for actually implementing the new technology.
- Regarding the “early adopter” approach, Defra are reconsidering how the early adopter stage is defined. Priority fisheries will still be their primary focus, however, the project design may need to be adjusted to reflect on the fisheries themselves before more data comes in.

2. What is REM and how can we use it? – Rebecca Lamb (Cefas)

Presentation summary

- The installation of REM on vessels is complex and requires crew members to ensure fish are placed in camera-visible areas.
- Transforming raw footage into actionable bycatch data is a collaborative effort that requires researchers to manually review footage to quantify discards and measure lengths. Moreover, REM needs to be considered as part of a suite of tools to collect data, alongside others such as industry data generation and observers.
- REM’s greatest strength is its flexibility in how you apply it, as it can be used differently depending on your monitoring objectives.

- There are currently low amounts of training data for AI models, and as some species are harder to identify by photograph, manual review is currently more reliable.

NAB discussion

- What quality assurance is in place for direct observers as REM and AI technology develops, given that ‘perfect should not be the enemy of good’?
 - Cefas explained that so far, trials have had onboard observers operating at the same time as REM, to compare the findings and better validate results. It is also best practice to compare REM data with skipper reports and logbooks. Cefas emphasised that it is not about seeing which one is better, but about using both to get the most accurate data.
- Is the camera set-up on the vessels able to capture bycatch that cannot be hauled onboard, given that cetaceans can drop out of some types of fishing gear?
 - Cefas confirms that many cameras have an outward facing view to pick up the animals that are caught but not brought onboard.

3. An industry view – David Stevens (fisherman)

A pre-recorded video was provided by NAB member David Stevens, on the benefits and challenges of REM and how he sees REM fitting into the future of the fishing industry.

NAB discussion

- A low bycatch rate can still have significant population level impacts in certain cases.
- There remains a general lack of properly estimated quantitative thresholds for bycatch rates, noting that these are species and population dependent.
- If more broadly dispersed across fisheries, REM could be used in determining the actual scale of bycatch.

4. SWOT exercise – led by Joanna Murray (Cefas)

NAB members were invited to complete an interactive poll to share their thoughts on the strengths, weaknesses, opportunities and threats and opportunities (SWOT) of REM. A summary is given below, with the full SWOT whiteboard included in [Annex 1](#).

Strengths

- Data quality and precision: REM offers a more reliable and transparent data source than self-reporting, with the potential to improve estimation precision.

- **Operational efficiency:** Systems are autonomous and passive once installed, allowing footage to be reviewed multiple times for identification (ID) confirmation.
- **Comprehensive insight:** Fills critical evidence gaps when resources are low, providing a full accounting of catches and discards.
- **Flexibility:** Adapts to different data collection needs and supports adaptive management in response to bycatch incidents.

Weaknesses

- **Resource intensiveness:** High initial costs for procurement and installation, plus prohibitive costs for manual footage review.
- **Technical and biological limits:** Species ID remains a challenge (especially for multi-taxa programs), and dirty camera lenses can compromise data quality.
- **Data management:** Large volumes of data create analytical bottlenecks and a lack of capacity to review footage in a timely manner.
- **Inherent bias:** Relying on voluntary uptake and specific deployment patterns can introduce estimation bias.

Opportunities

- **Management reform:** Ability to shift toward results-based management and align REM data with appropriate policy incentives.
- **Efficiency gains:** The "collate once, use many times" approach can inform regulatory reform and pinpoint bycatch hotspots in real-time.
- **Technological advancement:** Development of AI tools to assist in quantification and the potential for simpler setups in future installations.
- **Socio-economic benefits:** Reverses the burden of proof for fishermen and creates commercial value for data, which can be used as an incentive for participation.

Threats

- **Industry resistance:** Concerns over privacy, "big brother" surveillance, and negative perceptions of REM ramifications could limit uptake.
- **Policy and governance:** A lack of government commitment to rollout, coupled with regulatory reform that does not keep pace with technology.
- **Data integrity:** Risks of incorrect data if Machine Learning (ML) is poorly used or if groups over-estimate the current potential of the technology.
- **Sustainability costs:** Long-term cloud storage costs and the carbon footprint associated with AI data processing.



5. EEFPPO North Sea Trial – Joanna Murray (Cefas)

Presentation summary

- The trial is being delivered in partnership with Eastern England Fish Producers Organisation (EEFPO) and two member fishing companies operating out of Peterhead, involving 9 vessels.
- 8 of the vessels are each fitted with 3 cameras positioned in different areas to capture the most footage, and all currently have an [Anchorlab Black Box Lite](#) system installed.
- Focusing on seabird bycatch, the trial aims firstly to collect baseline data on seabird interactions, and secondly to trial one or more mitigation measures.

NAB discussion

- Bernadette Butfield (RSPB) took an action to set up a call with the RSPB conservation science team to look into bird vessel interactions calculations.
- If the grid were to be aligned with the horizon, distance from the horizon could then be used to more easily calculate where the grid squares are in space.
- If a period of exhaustive sampling was carried out for towing footage (e.g. up to 100%), this could be used to determine if the subsampling approach is appropriate and robust.
- Do the vessels have sensors to detect when catch processing begins, as this is often when seabirds are most active?
 - Cefas confirmed that they use sensors to detect when the conveyor belt is processing.
- *The Clean Catch team wishes to acknowledge here that the input from NAB members, who comprise a range of different expert groups, was invaluable.*

6. Any other business

- An NAB member noted that if AI is ever going to be used at magnitude, there has to be shared investment in its development, and vast shared image libraries will be needed to store and analyse the data.
 - Other members agreed that the biggest challenges are big data, AI tools, and storage.
- An NAB member commented that they had not considered REM in a seabird-specific context before.



Annex 1: SWOT whiteboard responses in full

Strengths	Weaknesses	Threats	Opportunities
<p>Offers flexibilities in data collection</p> <p>Fully transparent fisheries</p> <p>More reliable data than self-reporting and potentially than observers too</p> <p>potential to improve estimation precision</p> <p>Comprehensive understanding of the issue - fill data gaps</p> <p>Filling evidence gaps when resources are poor</p> <p>improves opportunities for adaptive management in response to bycatch incidents</p> <p>Encourage better compliance and self reporting</p> <p>Passive once installed compared to observers or self reporting</p> <p>Autonomous</p> <p>video can be reviewed multiple times for ID confirmation</p> <p>Can give full catch and discard accounting</p> <p>Data can be utilised to support claims and certification requirements, and perhaps streamline other info requirements from fishers (reduce paper work)</p> <p>Help monitor and measure progress towards environmental targets inc GES and Environment Act species abundance</p>	<p>Initial procurement and installation costs can be high</p> <p>Species ID issues needs rectified, more data and vessels using it would help.</p> <p>A dirty camera can really impact data</p> <p>Lack of capacity to analyse and review footage</p> <p>manual review costs can be prohibitive</p> <p>Delays because of voluntary approach</p> <p>Analytical challenges with large quantities of footage.</p> <p>Relying on voluntary uptake across the board</p> <p>species ID is a challenge for multi taxa programmes</p> <p>Volume of data generated and analysis needs</p> <p>depending on deployments patterns there is potential to introduce estimation bias</p> <p>detailed biological sampling is not possible</p> <p>Lack of clear policy directives that align with other fisheries policies</p> <p>Wont have the first hand detail of human observers on boats</p> <p>Voluntary uptake isnt generating enough data to provide proof of wider benefits</p>	<p>Intrusive nature of the tool could limit uptake</p> <p>Poorly perceived tech rollout will hamper uptake & trust in systems</p> <p>Lack of government commitment to timely roll out in key fleet causing bycatch</p> <p>Regulatory reform is challenging and time consuming and may not keep pace with the development of technology</p> <p>Possible incorrect data if ML / AI is utilised</p> <p>relying on a voluntary approach</p> <p>Negative perceptions from industry</p> <p>for bycatch which is not illegal, can EM be used in a mandatory way</p> <p>Privacy concerns from industry when data are collated by government and can be subjected to FOI</p> <p>Over-estimating the potential of REM from certain groups (i.e. what it can achieve and how quickly)</p> <p>Industry perception of the ramifications of having REM installed</p> <p>Standards and interoperability between jurisdictions</p> <p>Carbon cost of AI processing of data</p> <p>Landing Obligation (the perfect) being the enemy of the good</p> <p>Cost of ongoing use of REM TO AN IN</p> <p>The true cost of long term storage (cloud) can be expensive</p> <p>Perception by fishermen that it will have a negative impact & 'big brother' reaction</p> <p>Lack of trust</p>	<p>REM can provide data to inform regulatory reform</p> <p>Align with appropriate policy incentives</p> <p>Commercial value of the data as an incentive / opp for remuneration</p> <p>Collate data once, use many times</p> <p>Could provide bycatch rates for a</p> <p>Results based management</p> <p>Simpler setup and installation procedures</p> <p>could help improve bycatch assessments if potential biases are understood and quantifiable</p> <p>AI tools</p> <p>Process requires multiply stakeholders - opp to demonstrate new ways of working / systems approach to project mgmt</p> <p>Reverses the burden of proof</p> <p>Adaptive management</p> <p>In time, less burden on fishers to record if system is perfected</p> <p>Accurate data to pinpoint hotspots either gear type, locations, or temporal</p> <p>Management for bycatch hotspots (maybe in real time?)</p> <p>Better data supports mutual trust and transparency</p> <p>Potential to run mitigation and monitoring together to get larger samples sizes for mitigation trials</p> <p>Mandatory roll out will increase data to aid development of AI as well as management decisions</p> <p>Quantified sensitive species bycatch</p> <p>Flag any emerging issues e.g. with sensitive species bycatch before they become detrimental to species</p>