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Exec. Summary - Review of the monitoring & regulatory landscape for bycatch in UK marine waters

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Executive Summary -

Review of the monitoring and regulatory landscape

for bycatch in UK marine waters

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Abstract

The UK's bycatch management framework remains insufficient in achieving Good Environmental Status (GES), hindered by gaps in monitoring, enforcement, and data-driven policy. While legal instruments such as the Fisheries Act (2020) and initiatives like the UK Bycatch Mitigation Initiative (2022) reflect a commitment to addressing bycatch, their effectiveness is undermined by inconsistent implementation, limited species coverage, and reliance on voluntary measures. Strengthening regulatory oversight, expanding Remote Electronic Monitoring (REM), standardizing data collection, and enforcing reduction targets are essential to aligning UK policy with international commitments and achieving GES. Without decisive action, bycatch will continue to threaten marine biodiversity, disrupt food web dynamics, and undermine the sustainability of UK fisheries.

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Background and Context

The marine environment provides valuable natural resources, supporting diverse wildlife, stabilising the climate, and generating employment opportunities. Despite their importance, marine ecosystems are increasingly under threat from unsustainable practices and human activities. Bycatch, the unintended capture of non-target marine organisms,¹ can represent a significant threat to marine biodiversity. Bycatch can deplete vulnerable species,² disrupt ecosystem balance,³ and undermine the sustainability of fisheries.⁴ Addressing this issue is critical for the effective management of UK marine ecosystems. The management of fisheries bycatch in UK marine waters is governed by a framework of regulatory and policy measures that reflect national, regional, and international commitments to sustainable fisheries. Bycatch poses significant ecological and economic challenges, making its effective management a key priority in marine conservation and fisheries governance.

To address these challenges, the European Union (EU) established a comprehensive framework to protect and conserve its coasts and seas while promoting their sustainable use. Central to this effort is the Marine Strategy Framework Directive (MSFD),⁵ which establishes the legally binding implementation of the ecosystem-based approach for managing Europe's marine environment. The MSFD aims to achieve GES for EU marine waters and safeguard the resources underpinning marine-related economic and social activities. While the MSFD is EU legislation, post Brexit, the UK continues to operate under the legal framework that it created through the Marine Strategy Regulations 2010 (MSR).⁶

Key assessments, such as the UK Marine Strategy (UKMS)⁷ evaluation and the 2023 OSPAR Quality Status Reports⁸, reveal the scale of challenges UK marine systems still face. The UK failed to achieve GES for 11 out of 15 indicators in the 2019 assessment, which included indicators related to bycatch (e.g. indicators for marine food webs and seafloor integrity) and early indications suggest that this trend is unlikely to reverse in the upcoming 2024/2025 UKMS assessment (as of March 21st, 2025, this remains unpublished).

GES Descriptors and Indicators

The MSFD defines GES through 11 descriptors that assess various aspects of marine ecosystems, from biodiversity to human-induced pressures. These descriptors, supported by specific indicators, provide a structure for monitoring and evaluating ecosystem health while promoting sustainable use.

Expert evaluations run both within the MarFishEco team and in consultation with external experts, highlighted four descriptors as most relevant to bycatch: biodiversity, commercial fish and shellfish, food webs, and seafloor integrity. These were identified based on the likelihood, severity, and geographic extent of bycatch impacts relevant to each. This expert-led approach ensured that subsequent evaluations and recommendations related to UK bycatch were

grounded both in peer reviewed literature synthesis but also in the practical understanding of bycatch management challenges as they related to GES.

GES Indicators and Bycatch Impacts

Bycatch is a significant challenge for achieving GES because of the impacts it has on biodiversity, population dynamics, and ecosystem functioning.³ For effective management of bycatch to align with MSFD goals requires a prioritisation of GES indicators that accurately reflect bycatch pressures and their ecological consequences. The four MSFD descriptors identified as most relevant to bycatch by the expert assessments (commercial fish and shellfish, sea floor integrity, food webs, and biodiversity) are closely linked to the direct and indirect effects of bycatch, such as population declines, habitat degradation, and food web disruptions. Other descriptors, including hydrographical conditions, underwater noise, non-indigenous species, and contaminants, have more indirect connections to bycatch and are less critical for targeted management.

Key indicators highlight how bycatch can undermine ecosystem health. For example, Indicator 3.1 (Fishing Pressure) demonstrates how bycatch can amplify the ecosystem pressures that fisheries exert on marine systems by hastening declines in both target and non-target species, disrupting population age and size structures vital to maintaining biological limits.⁹ Indicator 6.2 (Benthic Community Condition) highlights how trawl and dredge bycatch often includes damage to seafloor habitats¹⁰ and reductions in biodiversity.¹¹ Indicators related to species productivity, distribution, and trophic dynamics also further illustrate how bycatch alters population structures, undermining food webs and ecosystem resilience.¹² Addressing bycatch by monitoring these priority indicators not only supports the drive towards GES but also helps users to monitor and evaluate fisheries management and fisheries impacts. Reducing bycatch will help promote population recoveries, restoration of ecosystem functionality, and the mitigation of broader environmental stressors,¹³ aligning with the MSFD's overarching goals for healthy marine environments.

Bycatch Regulation and Policy

UK and European states began adopting conservation-focused treaties in the early 1990s through international treaties including the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention),¹⁴ the Convention on Migratory Species (CMS),¹⁵ Agreement on the Conservation of Albatrosses and Petrels (ACAP),¹⁶ the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA),¹⁷ the International Convention for the Regulation of Whaling (ICRW),¹⁸ and the Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS).¹⁹ Later, the MSFD (2008) and Common Fisheries Policy (2013)²⁰ began shaping more tailored approaches to sustainable fisheries and bycatch mitigation. Following Brexit, the Fisheries Act (2020)²¹ established a new legal foundation for UK fisheries management. Since then, initiatives such as the UK Dolphin and Porpoise Conservation Strategy (2021),²² the

Marine Wildlife Bycatch Mitigation Initiative (2022)²³ and multiple fisheries management plans (FMPs) (2023),²⁴ have aimed to minimise bycatch, particularly of sensitive species. Complementing these efforts, the UK government has launched consultations on REM²⁵ and discards reform,²⁶ underscoring a commitment to data-driven, adaptive management.

The evolution of UK bycatch policies reflects a shift from broad international commitments to more targeted, species- and region-specific management plans. This trend demonstrates a move toward proactive bycatch reduction strategies, combining voluntary, regulatory, and consultative approaches. While progress is evident on paper, gaps remain in implementation, with inconsistent monitoring, enforcement, and stakeholder engagement limiting effectiveness in practice.

To strengthen its role on the global stage, the UK may need to explore policy mechanisms that further support economically vulnerable fisheries, and bolster compliance incentives that ensure equitable conservation practices across the UK. Such measures would enhance the UK's ability to better meet its environmental obligations related to GES while promoting a sustainable UK fishing sector.

Bycatch Monitoring

Effective bycatch management requires a monitoring system that not only collects data but also uses that data to robustly inform policy and management. In the UK, significant gaps remain between data collection and its application to fisheries management.²⁷ Uneven funding, inadequate program evaluation, and limited species coverage - often focused more heavily on megafauna rather than fish species - further undermine effectiveness. A key challenge is the lack of formal evaluation for monitoring programs, making it difficult to assess the success of bycatch reduction initiatives. Variability across regions and fisheries further complicates enforcement,²⁸ as differences in fleet composition, target species, and monitoring capacity create uneven regulatory landscapes. Some fisheries may have more resources and established compliance, while others operate with minimal oversight, leading to gaps in implementation. This underscores the need for standardised enforcement frameworks that remain adaptable to local contexts, ensuring consistency while allowing for regional flexibility where necessary.

Bycatch in small-scale fisheries remains a less-understood issue, often overshadowed by the focus on industrial-scale operations. Many small fisheries lack robust monitoring systems, resulting in limited data on bycatch levels. Addressing this gap requires increased engagement with small-scale fishers and the deployment of cost-effective, adaptable technologies such as low-cost REM solutions or collaborative data collection methods. For instance, the Devon & Severn IFCA trialled such a system to enhance compliance monitoring and improve data on fisheries impacts.²⁹

The absence of clear pathways from monitoring data to UK fisheries policy change further limits progress in reducing bycatch. While numerous projects collect valuable data, it remains unclear which datasets have been used to successfully inform policy, complicating efforts to evaluate their cumulative impact. Clear documentation, centralised repositories, and secure data-sharing mechanisms are essential for improving accessibility and ensuring monitoring efforts translate into meaningful, long-term outcomes.

Bycatch Enforcement

Without clear pathways for translating monitoring data into enforceable policies, UK bycatch management remains limited. Bridging this gap requires stronger coordination between monitoring programs and enforcement bodies, ensuring that data from REM and observer programs directly informs compliance strategies and that this is translated into successful enforcement in the field. Effective enforcement as well as dynamic bycatch regulation is important to sustainable fisheries management and the protection of marine ecosystems.¹

Despite the legal foundation created by the Fisheries Act and frameworks like the JFS and FMPs, enforcement appears to remain fragmented between the UK's devolved administrations, constrained by limited resources and reliance on sometimes outdated regulation and voluntary industry schemes. Delayed implementation of FMPs and the weak enforcement of monitoring tools further undermine progress. Mandating technologies like REM to collect information on fishing activity, and establishing clearer compliance mechanisms will help enhance enforcement efforts and align them with the UK's broader sustainability goals, including those set out in the MSFD and the MSR.

Conclusion

Achieving GES in UK marine waters requires clear, enforceable bycatch reduction targets with binding timelines. These targets should address monitoring, enforcement, compliance, and measurable reductions across all fisheries, not just megafauna, but also fish species, given their widespread bycatch impact. This would benefit food web dynamics, benthic habitats, and ecosystem-based fisheries management. Aligning national policies with international frameworks, and the UK's post-Brexit marine strategy will streamline governance, improve accountability, and ensure consistency with global best practices.

Key recommendations for improving bycatch management include strengthening regulatory frameworks with enforceable metrics, scaling up REM and observer coverage, standardising data collection and sharing, and promoting industry-driven monitoring. Cost-sharing models,

¹ It is important to note that this is not the only thing that is necessary for marine protection and conservation. Marine conservation is a multi-faceted problem that involves various factors within the UK fishing fleet and additional factors extraneous to fisheries like land run-off, windfarm development, aggregate extraction etc.

flexible technical measures, and funding for innovative gear testing will assist fishers while enhancing mitigation efforts. Adaptive management, responsive to climate change and industrial expansion, will ensure resilience against future pressures.

Bycatch remains a significant challenge for sustainable marine ecosystem use and requires dynamic, data-driven solutions and collaborative governance. Addressing it holistically will not only support biodiversity but also strengthen the resilience of fisheries and coastal communities.

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