



Sustainable fisheries, fully integrated with wider marine protection measures

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After climate change, commercial fishing has been the leading cause of loss of marine biodiversity¹ globally. This crisis in nature has consequences for all of us Seafood is an important source of protein for millions – in many cases a low carbon source - and provides socio-economic benefits to coastal communities². However, the way our fisheries have been managed has resulted in these benefits being only partly realised and, in many cases, seriously jeopardised^{3,4,5}. Urgent, bold and transformative policy changes and investment are required to address overfishing and protect marine biodiversity from further decline

What is the current state of play?

In 2017, 49% of assessed fish stocks of interest to the UK were being fished at unsustainable levels (i.e. fishing mortality above maximum sustainable yield, MSY)⁶ and whilst progress is being made (e.g. 33% of assessed stocks had catch limits set too high in 2020⁷) the rate of progress has been far too slow and just 4 of 15 indicators for healthy seas by have been achieved⁸. In addition, a large number of our fish stocks still lack enough data to develop proper stock assessments to know whether fishing pressure is sustainable or not. For example, over 60% of UK shellfish stocks have an unknown status⁹. 2020 domestic and international targets to end overfishing have been missed and there is a need for renewed political will to recover our fish stocks to healthy levels.

The incidental capture of non-commercial species, including endangered, threatened and protected (ETP) species of cetaceans, sea birds, elasmobranchs and turtles continues to be a major problem in commercial fisheries in the UK. Recent estimates of the annual UK fisheries toll from ICES include over 1,500 small cetaceans, predominantly comprising harbour porpoise and common dolphin and over 500

¹ IPBES, 2019. Report of the plenary of the [United Nations] intergovernmental science-policy platform on biodiversity and ecosystem services on the work of its seventh session. Addendum: summary for policymakers of the global assessment report on biodiversity and ecosystem services of the IPBES. Paris, 29 April–4 May 2019. Available at https://ipbes.net/system/tdf/ipbes_7_10_add.1_en_1.pdf?file=1&type=node&id=35329 [Last accessed, 26.11.19]

² DEFRA, 2019. Marine strategy part one: UK updated assessment and Good Environmental Status. Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/841246/marine-strategy-part1-october19.pdf [Last accessed 1.10.20]

³ NEF, 2012. Jobs lost at sea. Available at https://b3cdn.net/nefoundation/e966d4ce355b7485c1_a7m6brn5t.pdf [Last accessed, 08.09.2020]

⁴ Oceana, 2018. More food, more jobs and more money in the UK: Oceana's recipe for fish recovery. Available at: <https://eu.oceana.org/en/publications/reports/more-food-more-jobs-and-more-money-uk-oceanas-recipe-fish-recovery> [Last accessed, 08.09.2020]

⁵ World Bank, 2017. The sunken billions revisited: progress and challenges in global marine fisheries. Environment and Development. Washington, DC: World Bank. © World Bank.

<https://openknowledge.worldbank.org/handle/10986/24056> License: CC BY 3.0 IGO. [Last accessed, 08.09.2020]

⁶ <http://data.jncc.gov.uk/data/fd9c66ae-52c8-4e70-8253-6d6a1d23901e/UKBI2019-F-B2.pdf>

⁷ Victoria Prentis MP, 2020. House of Commons Hansard: Maximum Sustainable Yield: UK-relevant Quota Stock Species. 29 April, volume 675. Available at <https://hansard.parliament.uk/Commons/2020-04-29/debates/20042932000014/MaximumSustainabilityYieldUK-RelevantQuotaStockSpecies> [Last accessed 1.10.20]

⁸ See 1

⁹ See 8



seals¹⁰. ICES also note that high bycatch rates were observed for some elasmobranch species which are of conservation concern, particularly in trawl gears in the Celtic Sea, the Greater North Sea and nets in the Celtic Sea. There are also hotspots of seabird bycatch, but as for many other species, low or absent monitoring levels make it difficult to estimate the total mortality on these species directly due to fishing, yet downwards trends for many seabird species have been observed in recent decades. Data on non-UK fisheries bycatch occurring in UK waters are not available, but these contribute to those of the UK fleets. The UK is failing to meet its conservation targets on seabirds, seals (and fish as mentioned previous) and it is unknown (but we think unlikely) if cetacean targets are being met as well. While the UK have committed to implementing bycatch strategies for cetaceans, seabirds and other protected species, progress has been painfully slow, despite having known about the problem for more than twenty years and we still don't understand the true impact it is having on marine wildlife

New UK Fisheries legislation now sets out a clear objective of achieving the recovery of stocks while minimising the impact that fishing activities have on the wider marine environment and specifically to minimise and where possible eliminate the incidental capture of sensitive species. There is also an objective to look at how fisheries management can help combat climate change as well as consider climate change adaption. These objectives now need to be delivered through the introduction of real change on the water - to follow scientific advice on quota setting, introduce independent monitoring to allow accountability for this and monitor effectively the impacts of fishing on wildlife, and to ensure that the spatial protection needed to meet MPA objectives and climate change is incorporated into new management measures

Commercial fisheries are the main cause of physical disruption to the seabed with over 45% and 73% of the Celtic Seas¹¹ and Greater North Sea¹² ecoregions respectively still being physically damaged by bottom towed fishing gear. Impacts are related to the types of seabed communities and other sources of seabed disturbance such as wave and tidal action, but in the North Sea for example, such gears have reduced the biomass and production of bottom-dwelling organisms¹³. Despite this, less than 5% of the UK's Marine Protected Areas prohibit bottom towed fishing. Many species found on the seabed in UK waters remain listed by OSPAR as threatened and declining and whilst conservation targets have not been met for sea floor habitats, it is still unclear what sustainability actually looks like in terms of fishing on different habitat types due to a lack of long-term, large scale studies comparing fished and truly non-fished areas.

¹⁰ICES, 2019. Working group on bycatch of protected species.

<https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/HAPISG/2019/ICES%20WGBYC%20Report%202019.pdf> [Last accessed 1.10.20]

¹¹ ICES, 2019. Celtic Seas ecoregion - ecosystem overview. Available at

http://ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/EcosystemOverview_CelticSeas_2019.pdf [Last accessed 1.10.20]

¹²ICES, 2019b. Greater North Sea ecoregion - ecosystem overview. Available at

https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/EcosystemOverview_GreaterNorthSea_2019.pdf

¹³ Hiddink, J., Jennings, S., Kaiser, M., Queiros, A., Duplisea, D. and Piet, Gerjan. 2006. Cumulative impacts of seabed trawl disturbance on benthic biomass, production, and species richness in different habitats. *Canadian Journal of Fisheries and Aquatic Sciences* 63 (2006) 4. 63. 10.1139/f05-266



The lack of monitoring of fishing operations underpins all of these issues. Current catch removal levels are poorly monitored with less than 1% of days fished independently monitored¹⁴. Instead fish *landings* are monitored and tallied against log book entries, a system that has little independent verification and therefore significant scope for undermining. Robust monitoring is important for not only the enforcement of fishing rules but also for building data on stock status and monitoring reductions in bycatch and habitat impacts. Without this it is extremely difficult to evaluate and manage fisheries impacts with confidence, to provide consumer certainty or to recover the health of our seas and fisheries resources.

What does success look like?

Over decades of fisheries management, various solutions to these long standing issues have been tabled and launched, yet in many cases they have not been fully implemented and/or they have been developed and implemented in isolation to each other. As a result, our management is truly lagging behind public and political aspirations for the health of our fisheries and seas.

It is possible to break free from this cycle and to finally deliver changes that stick, but it needs bold and transformative policy changes and investment. Such changes include:

- **Roll out Remote Electronic Monitoring with GPS and cameras (REM) across the UK** starting with over 10m and high risk smaller vessels. REM with cameras have been successfully trialled in the UK and is used in several countries around the world¹⁵. The cameras can not only support compliance and capture data that is important for stock assessments, but they also have the potential to provide insight into the type and frequency of other species incidentally caught in fishing gear¹⁶. REM can therefore support the implementation of protected species bycatch strategies, as well as the landing obligation or similar future policy. Importantly, REM can also help to build business and consumer confidence in the sustainability of their seafood. They also support more responsive management and ultimately deliver economic savings as fishing becomes more selective and overfishing is brought to an end.
- **Make binding commitments to recover all stocks to healthy levels and limit fishing mortality to MSY.** Recovering and maintaining stocks at healthy levels is not just of benefit to the environment and coastal communities, but fish stocks themselves are also a valuable source of carbon storage to help combat climate change¹⁷.

¹⁴ Calculated from the total observer days in England and Wales in here https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/605378/Data_collection_framework_annual_work_plan_2017_to_2019_UK.pdf divided by total fishing days at sea for over 10m vessels in England and Wales

¹⁵ Van Helmond, A.T.M., Mortensen, L.O., Plet-Hansen, K.S., et al. 2020. Electronic monitoring in fisheries: Lessons from global experiences and future opportunities. *Fish Fish*. 2020; 21: 162– 189. Available at <https://onlinelibrary.wiley.com/doi/full/10.1111/faf.12425>

¹⁶ Bradley, D., Merrifield, M., Miller, K.M., Lomonico, S., Wilson, J.R., Gleason, M.G. 2019. Opportunities to improve fisheries management through innovative technology and advanced data systems. *Fish Fish*. 2019; 20: 564– 583. Available at <https://onlinelibrary.wiley.com/doi/full/10.1111/faf.12361>

¹⁷ Trueman, C., Johnston, G., O'Hea, B., MacKenzie, K. 2014. Trophic interactions of fish communities at midwater depths enhance long-term carbon storage and benthic production on continental slopes. *Proceedings. Biological sciences / The Royal Society*. Available at



- **Ensure all pressure caught stocks and any at risk of overexploitation have adequate stock assessments** that incorporate the effects of warming seas. Cefas note that stock assessments are limited by current data collection. Without expanding the monitoring of some stocks, particularly shellfish, their assessment status may remain “unknown”¹⁸.
- **Apply a holistic approach to fisheries management.** Apply mixed fishery advice and develop and apply approaches that factor in bycatch, habitat, and climate change objectives when setting catch limits and evaluating fleet capacity. For example, instead of a cod management plan only considering what a sustainable catch rate is for cod, the plan should consider what other wanted species are caught with cod, what bycatch is encountered and on what habitats the fishing takes place to ensure that other environmental objectives can also be achieved. By doing so, win-win situations may be realised.
- **Incorporate fisheries into existing and future marine plans.** Further to the above, in order to apply a holistic ecosystem-based approach to fisheries management, all activities including fishing need to be considered together in order to ensure the full impact on our fisheries resources and marine environment is contained to acceptable levels. This is particularly important for the protection of spawning grounds and inshore habitats important for juvenile stages of fish.
- **Complete and implement robust bycatch strategies, including the UK Cetacean Bycatch Strategy, the UK Plan of Action on Seabird Bycatch and ongoing ‘Clean Catch’ work at Defra.** Regulatory bodies need to develop and implement strategies for the continued reduction of bycatch of vulnerable species, particularly Endangered, Threatened and Protected (ETP) species, ultimately to zero, and to ensure their primary habitats and food sources are properly protected (this should be reflected in stock management plans). In the short term, mortality rates need to be reduced to below levels which threaten the species.
- **Designate new Highly Protected Marine Areas to cover at least 10% of UK waters by 2023.**
- **Provide better incentives for development and use of low impact and selective fishing gears.** Incentives such as access to certain areas or fishing opportunities conditional on the demonstrable use of certain gear can be important in driving improvements in gear performance, as can the availability of new grant funding designed to support the development and roll out of low impact and selective fishing gears.
- **Increase capacity of managing authorities and scientific bodies** – These organisations should be commended for the work they deliver with the resources they have, but in order to deliver and administer the recommended solutions, fisheries authorities, **in particular the Inshore Fisheries and Conservation Authorities (IFCAs) in England**, will need much greater capacity.

As new fisheries and marine environmental governance is being reviewed at the moment across the UK administrations, there are real opportunities to incorporate these commitments into fisheries regulation. Following the passing of the Fisheries Act, interventions can be fleshed out through the development of Joint Fisheries Statements over the next 18 months and any new secondary legislation, devolved legislation and policies to come.

https://www.researchgate.net/publication/262884286_Trophic_interactions_of_fish_communities_at_midwater_depths_enhance_long-term_carbon_storage_and_benthic_production_on_continental_slopes

¹⁸ UKMMAS. Marine online assessment tool. Available at <https://moat.cefas.co.uk/pressures-from-human-activities/commercial-fish-and-shellfish/> [Last accessed 1.10.20]



Resources required

Gaining control and responsibility of our Exclusive Economic Zone (EEZ) and replacing the many governance services that were previously undertaken at an EU level has and will require further investment in our departments and authorities (e.g. Defra¹⁹), but to incorporate the above solutions and to achieve truly sustainable and integrated fisheries management, it is clear that greater investment is needed into UK fisheries management and marine conservation. It should also be recognised that in recent years (2016 & 2017), the UK was spending, on average, less on environmental protection than its neighbouring EU countries²⁰ and spending on Natural England and the Environment Agency (outside of flood defences) has decreased over the last decade²¹. In 2016/17, the amount that was specifically spent on marine and fisheries by Defra was just £85million out of a total gross budget of £6.5 billion – just 1.3%²². In 18/19 the resource departmental expenditure limit (RDEL) specifically spent by Defra for marine and fisheries was just £74 million (out of a total budget of £2,053 billion – just 3.6%²³. By contrast, the marine environment accounts for over 50% of the total territory of England and in the context of the mounting nature and climate emergencies plus the unfulfilled benefits of sustainable fisheries management, spending on marine and fisheries should justifiably increase by a substantial amount. Investments now will pay dividends in the future.

As a comprehensive spending review is underway and the UK Government seeks to replace the EU European Maritime and Fisheries Fund (EMFF), it will be critical for it to ensure the funding made available through both future grant schemes and wider departmental spending match the ambitions of the Government to have ‘world leading’ and ‘gold standard’ fisheries management combined with desires to “build back better’ with a ‘green recovery’ post covid 19.

Key considerations in relation to resourcing:

Recovering stocks – There are several reports that indicate that recovering and sustainably managing fish stocks will result in increased profits^{24, 25, 26}. The most recent, an Oceana report from 2018, indicated that recovering UK fish stocks to healthy levels (associated with MSY) would result in a 37% rise in the value of fish landings, and thousands of new jobs²⁷.

¹⁹ HM Treasury, 2019. Whole of government accounts. Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/803751/WGA_2017-18_WEB_1.pdf [Last accessed 2.10.20]

²⁰ NAO, 2020. Overview 2019: Environmental protection. National Audit Office. Available at <https://www.nao.org.uk/wp-content/uploads/2019/10/Departmental-Overview-Environmental-protection-2019.pdf> [Last accessed 2.10.20]

²¹ See 20

²² NAO, 2017. How DEFRA spends its money. National Audit Office. Available at <https://www.nao.org.uk/wp-content/uploads/2017/10/A-short-guide-to-the-Department-for-Environment-Food-Rural-Affairs.pdf> [Last accessed 2.10.20]

²³ DEFRA, 2019. DEFRA annual report and accounts 2018-19. Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/818433/defra-annual-report-2018-2019.pdf [Last accessed 2.10.20]

²⁴ See 4

²⁵ See 2

²⁶ See 3

²⁷ See 3



Transparent and accountable fisheries: - Current observer coverage is already very low at less than 1% and according to the MMO, is constrained by staff and financial resources²⁸. REM has been shown to be a cost effective way to supplement observer data collection and to encourage compliance. In 2017 WWF calculated that full REM costs per vessel per year were £3785 (with EMFF grant subsidy) or £5290 (without EMFF subsidy)²⁹. For the current 1,276 over 10m vessels in the UK (as a start), this equates to between £4.8 and £6.75million. That is less than 1% of the value of the seafood caught by these boats and a fraction of the £20m or more that is spent on current monitoring. With REM costs also decreasing year on year, the technology represents an excellent investment into the health of our seas.

Adequate stock assessments – A substantial investment in scientific data collection, analysis and stock assessment is needed. The UK lacks adequate assessments for over 60% of its shellfish stocks³⁰. Plus 28% and 47% of European landings (including the UK) from the Celtic Seas and Greater North Sea respectively are from stocks with insufficient stock assessments³¹.

Increase funding for local managing authorities and scientific bodies – These organisations should be commended for the work they deliver with the resources they have, but in order to deliver and administer the recommended solutions, fisheries authorities like the MMO and IFCA's will need significant increases in funding. English IFCA's in particular will need estimated additional £90 million a year to enable them to effectively monitor and manage existing and new Marine Protected Areas (MPAs) which are crucially needed in order to help achieve marine Good Environmental Status. A report completed in 2018 estimated costs of MPA management at sites in North Devon³². The figure of £90 million is an extrapolation of these costs.

²⁸ UK Government, 2016. United Kingdom work plan for data collection in the fisheries and aquaculture sectors 2017-2019. Available at

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/605378/Data_collection_framework_annual_work_plan_2017_to_2019_UK.pdf [Last accessed 1.10.20]

²⁹ WWF, 2017. Remote electronic monitoring. Available at https://www.wwf.org.uk/sites/default/files/2017-10/Remote%20Electronic%20Monitoring%20in%20UK%20Fisheries%20Management_WWF.pdf [Last accessed 1.10.20]

³⁰ See 1

³¹ EEA, 2019. Landings of commercial fish and shellfish per EU marine region, and proportion of landings for which stock assessments were conducted in 2016-2018. Available at <https://www.eea.europa.eu/data-and-maps/figures/total-catch-in-ices-and-gfcm-fishing-regions-of-europe-in-5> [last accessed 1.10.20]

³² WWF, 2018. Sustainable financing mechanisms for Marine Protected Areas in North Devon. Available at <https://www.wwf.org.uk/sites/default/files/2018-06/North%20Devon%20sustainable%20finance%20mechanisms%20report%20FINAL.pdf> [last accessed 1.10.20]