

Food security during a nature and climate crisis

Summary

- More sustainable management of our land and seas is vital to meet our food, climate and nature needs in the long-term.
- The biggest risks to food security in the medium term come from climate change and loss of nature. Our food supply will not be secure if we continue to erode the nature which underpins production by providing pollination, healthy soils, natural pest control and functioning food chains, providing resilience in our harvest on land and at sea.
- Everyone should have access to nature and climate friendly food – this must be our goal for a fair, just and food secure society.
- Action is needed in multiple policy areas including supporting agricultural and fisheries transition to sustainable models; greater knowledge transfer to bring the majority in line with best practice; food waste reduction; sustainable and healthy diets uptake; poverty alleviation and access to food to move us to a food secure, net zero and nature positive future.

Addressing the nature and climate crises will require significant changes to current land and sea use across the UK. As 70% of our land is farmed, it is crucial that land use change be managed to support, not compromise, food security. At sea there is scope for sustainably harvested seafood to form part of a low impact diet, but we are failing to manage production sustainably, jeopardising future stocks.

The IPCC states that climate change is already directly affecting food security and nutrition (FSN), which “exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life¹.” Recent definitions of FSN have emphasised the importance of sustainability, where the continued degradation of our natural resources and rapid declines in biodiversity directly impact our ability to achieve long-term food security.

The way we use our land and sea must provide the basis for sustainable and healthy diets, whilst at the same time providing more space for wildlife and nature-based solutions to climate change. Managing our seas and productive land differently, for example through agroecological approaches and sustainable seafood production, can help provide: food for sustainable and healthy diets; net carbon sequestration; significantly reduced pollution; and space for nature and action on climate change.

State of food security in the UK and challenges faced

In terms of national food security, the UK is rated as one of the most food secure nations on earth². We meet a significant amount of our food needs through domestic production, producing 76% of the food that we can generate domestically here in the UK³. However, the long-term nature of this security is at risk due to climate change and other

¹ HLPE. 2020. Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome.

² [Global Food Security Index \(GFSI\) \(economist.com\)](https://www.economist.com/global-food-security-index)

³ [United Kingdom Food Security Report 2021: Theme 2: UK Food Supply Sources - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/uk-food-supply-sources)



environmental pressures such as biodiversity loss, and according to the FAO, in 2018, an estimated 2.2 million people in the UK were severely food insecure, the highest reported rate in Europe. The onset of the Covid-19 pandemic further exacerbated food insecurity, particularly for vulnerable populations. The Food Foundation has reported an increase in the percentage of food insecure households in the UK from 7.6% pre-Covid to 10.8% by January 2022, affecting 5.7 million adults and over 2.5 million children. High levels of food insecurity are juxtaposed with increased rates of obesity and diet related disease across socioeconomic groups. ‘Hidden hunger’ in the form of micronutrient deficiencies is also a largely undermeasured form of food insecurity, highlighting the importance of nutritional security as a tenet of food security and the failure of our current food system to provide consistent, affordable access to healthy, sustainable and diverse diets for all.

The current high rates of food insecurity will continue to be adversely impacted by changing climate and the cost of living crisis, where vulnerable populations are most likely to be disproportionately affected. The crisis in Ukraine has exposed many of the vulnerabilities of our current food system which is heavily reliant on a range of inputs from around the world, particularly fertilisers. We must reduce our reliance on these inputs, which are often environmentally damaging, finite and at risk from climate change, in order to promote food security and sustainable agricultural practice that will be resilient in the face of climate change and system shocks. As we progress along the pathway to Net Zero it is crucial that decisions around land use change are carefully considered to support, not compromise, nature and food security, and avoid exporting our impacts to other countries.

Supporting food security and nature in a climate crisis

The role that agriculture, land use change, pollution, unsustainable fishing practices, climate change and development have played in the significant loss of biodiversity in the UK is widely accepted. Since 1970, an estimated 41% of species are in decline, with 15% of species at particular risk of extinction⁴. Unsustainable intensive farm management practices have had a catastrophic impact on nature, evidenced by the 54% decrease in the Farmland Bird Indicator since 1970, with similar declines in butterfly populations and valuable wildflower meadow habitats. On a global scale, fishing (and other direct organism exploitation) has been identified as the biggest direct cause of marine biodiversity loss⁵. In the UK, only 35% of quota fish species were set in line with scientific advice in 2022⁶, with commercial fishing identified as having a widespread and significant effect on the health of our seas. Over the last three decades the number of breeding seabirds [fell by almost a quarter](#) across the UK, and by [nearly half in Scotland](#), the UK’s seabird stronghold. This is a major concern given that these top predators are on the frontline of the nature and climate emergency and are clear indicators of ocean health. The urgent need to reduce GHG emissions and address biodiversity means nature-based solutions are key to the UK’s pathway to Net Zero.

Making the best use of our land and seas

Society requires landscapes and seas that provide both sustainable systems of farming, growing, fishing and aquaculture, and to release and protect areas for nature and nature-based solutions to climate change.

To free up this space, we must make best use of the farmed landscape to produce sufficient food for sustainable and healthy diets. On land that produces the highest food yields, sustainable food production should generally be prioritised as part of a wider living landscape where people and nature can thrive. In lower-yielding farm systems, the promotion of semi-natural habitat and in-field biodiversity should deliver co-benefits for nature and climate, alongside nutritious food. In addition, land must be released to provide space for nature, to allow species which require wilder unfarmed land to thrive. In particular, our lowland peat soils under intensive agricultural production are

⁴ [State of nature report \(rspb.org.uk\)](#)

⁵ Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. 2019. Summary for policymakers of the global assessment report on biodiversity and ecosystem services. IPBES Plenary at its seventh session (IPBES 7, Paris, 2019). Zenodo.

⁶ Bell, E., Nash, R., Garnacho, E., Oliveira, J.D. and O’Brien, C. (2022) Assessing the sustainability of fisheries catch limits negotiated by the UK for 2020 to 2022. Cefas.

currently a major source of CO2 emissions, with urgent need for re-wetting, restoration and sustainable use in order to support wetland species and halt the significant loss of CO2 from these soil types.

At sea we need to protect key areas of [blue carbon](#) (the carbon captured and stored in coastal and marine ecosystems, particularly by habitats such as seagrass meadows, saltmarshes, wetlands, muds and seaweed) which are capable of sequestering and storing carbon potentially more effectively than terrestrial counterparts⁷. The value of blue carbon is increasingly recognised for its key role in climate change mitigation and adaptation and it is essential that action is taken to protect and recover these vital stores, including from damaging fishing activity such as bottom trawling. More needs to be done to deliver sustainable management of our fisheries both for wildlife and climate mitigation to ensure the ocean can continue to deliver critical ecosystem services, including food and climate regulation, now and for generations to come.

Nature underpins production

Whatever the land and marine management approach, it should be appropriate to the local area and sustainable in the long-term. We stress that nature and climate friendly farming, crofting and seafood production practices can deliver vital ecosystem services and climate change mitigation, but also result in greater resilience and climate adaptation potential within farming and fishing systems, with positive knock-on effects for food security.

The UK Government has explicitly recognised the role of biodiversity in supporting sustainable agriculture through ecosystem service provision⁸. On farm, nature can support food production through increased habitat for pollinators, natural pest control, reductions in soil erosion and promotion of healthier, living soils which can reduce reliance on expensive and environmentally damaging artificial inputs.

The UK and devolved governments are currently failing to meet 11 out of the 15 marine indicators for Good Environmental Status under the UK Marine Strategy*, identifying commercial fishing, and climate change among the key pressures preventing achievement of these targets. It is clear we are failing our seas, the people who depend on them for a living, future generations and the planet – given that a thriving ocean is key to planetary health. Sandeels are a key prey species for marine wildlife like seabirds, marine mammals and commercially targeted fish for human consumption such as cod. Sandeels have been historically unsustainably harvested in UK seas and action is urgently needed to implement strong and effective curbs on industrial Sandeel fishing in UK waters. The greatest benefit would come from bringing an end to the fishery, which does not include UK vessels.

Taking a foods systems approach

Historically, responses to food insecurity have been centred around the need for greater production. However, we currently produce more than enough food to feed the global population; demonstrating that food insecurity is linked less to calories produced, and instead results from factors including food waste, diet choice and lack of physical and financial access. Food waste alone comprises a large portion of potential calorie loss, with 6-7% of total harvest lost on farm and an additional estimated 22% of food purchased wasted off-farm (i.e. household, retail waste)³ across the UK. It is also important to note the role that the obesogenic environment plays in shaping food and nutritional security, where factors such as the profitability of high calorie, highly processed foods shape available food choices beyond consumer demand⁹. Increasing fertiliser prices in response to the crisis in Ukraine highlights our over-dependence on artificial inputs and the exposure of UK farming to geopolitical volatility, as well as demonstrating that more domestic production does not equate to food security if still dependent on imported inputs such as fertiliser


*The UK Marine Strategy is co-developed, coordinated and implemented across all four devolved UK administrations

⁷ O'Connor, J. J., Fest, B. J., Sievers, M., & Swearer, S. E. 2020. Impacts of land management practices on blue carbon stocks and greenhouse gas fluxes in coastal ecosystems—A meta-analysis. *Global Change Biology*, 26(3), 1354-1366.

⁸ United Kingdom Food Security Report 2021: Theme 2: UK Food Supply Sources - GOV.UK (www.gov.uk)

⁹ [Tackling obesity: future choices - project report \(2nd edition\)](#)





and animal feed. Rather than a focus on increased production, supporting food security in the UK will require linked strategies addressing economic and infrastructure changes alongside a transition towards sustainable agriculture and fisheries that deliver for nature, climate and people in the long term.

Sustainable and healthy diets

There is increasing recognition of the contribution of dietary choice to the climate and nature emergency, with overconsumption of the most environmentally damaging foods, such as intensively produced meat, the greatest dietary contributor to global warming and environmental degradation. Adoption of sustainable and healthy diets which result in an overall reduction in the consumption of meat is crucial to mitigating water and land scarcity globally. An estimated 70% of the potential calories for human consumption (enough to feed an additional estimated 4 billion people) are lost in the conversion of feed crops to meat for human consumption¹⁰. In the UK, we currently use over half our arable land to produce animal feed¹¹. This highlights the inefficiency of water, land, and fertilizer use in the commercial production of meat, with the UK Committee on Climate Change stressing the need to reduce lamb, beef and dairy intake 20% by 2050. In addition to the implications of reduction for nature, climate adaptation and food security resilience, reduced meat consumption (particularly red and processed meat) is known to promote individual health. Despite this, some livestock farming systems such as crofting in the Highlands and Islands of Scotland play a key role in the conservation of species and habitats that are of globally significant importance. It is therefore vital that reductions in meat consumption are taken holistically, through citizens and government policy adopting a 'less and better' approach.

The government currently recommends that we include at least two portions of fish weekly, one of which should be oily¹². We fail to meet this target and much of the seafood harvested in the UK is exported. The IPBES identified unsustainable fishing as the biggest threat to marine biodiversity both in terms of the target species but also those species that are caught incidentally and the habitats that are damaged by certain gear types. The UK has passed new fisheries legislation that includes commitments to both an ecosystem objective and a climate change objective for fisheries management which should ensure these critical aspects guide management decisions and that sustainable fish and shellfish are available to the UK consumer.

Access for everyone

We all want to live in a society where everyone has access to, and can afford, a healthy and nutritious diet. Given that our productive capacity depends on a healthy natural environment it follows that everyone should have access to nature friendly food. Clearly we are a long way from that situation now but this should be our goal if we want to live in a fair society which is food secure and can remain so forever. We work closely with a range of partners across the four countries, including Sustain who work on issues surrounding food access, and recommend their [ongoing work](#) in this area for more information. In Scotland, we are a key partner in the Scottish Food Coalition (SFC), a coalition of organisations working to successfully deliver a crosscutting Good Food Nation Bill. Alongside partners in the SFC, we are calling for the Right to Food to be enshrined into Scottish Law to help with issues around access to food.

¹⁰ Machovina, B., Feeley, K. J., & Ripple, W. J. 2015. Biodiversity conservation: The key is reducing meat consumption. *Science of the Total Environment*, 536, 419-431.

¹¹ National Food Strategy: The Evidence, July 2021. (nationalfoodstrategy.org)

¹² [Fish and shellfish - NHS \(www.nhs.uk\)](https://www.nhs.uk)

Recommendations

The current challenges we face across the food and farming sector require policy shifts towards supporting nature and climate friendly practices for all types of food production, aligning consumption with sustainable and healthy diets and greater action to decrease food waste. **This requires a wide range of actions across land and seas management which should include:**

1. **Action to deliver and support the transition to sustainable, nature and climate friendly land management** including **the development of country level land use strategies to guide best use of land**, agricultural investment schemes to cover the true cost of sustainable farming and support farmers making the transition to nature and climate friendly farming helping to safeguard future productive capacity. This should include more effective application of existing agricultural knowledge, science, and technology, via development in skills transfer and support of local knowledge networks.
2. **Action to deliver and support sustainable climate and nature smart fisheries management.** This should include strengthening marine policy frameworks, such as the UK Marine Strategy, to deliver critical actions that drive ocean recovery and ensure that fisheries management is fit for purpose in combatting the twin nature and climate emergency, contributing to long term sustainable food production. In addition, improved knowledge is needed to guide urgent measures within marine food production that will help climate mitigation including addressing the sector's GHG emissions and blue carbon impacts.
3. Policy interventions and promotion of educational efforts and campaigns to the **shift to sustainable and healthy diets**, including aligning meat, fish and dairy intake with recommended dietary levels and increased consumption of local, seasonal produce. This should include enforcement of public procurement requirements which centre around healthy and sustainable food.
4. **Interventions to strengthen local food systems** to provide a greater diversity of routes to market providing producers to secure a greater share of the value of the food they produce and increase resilience in the market. See our [Case for Local](#) report published in partnership with Sustain for more information and specific policy recommendations needed to support local food systems.
5. **Support mechanisms for low-income households** access to healthy, sustainable food such as provision of nutritious meals in schools, hospitals and other public institutions. For example, adaptation of the national standards to include the provision of two vegetable portions in all school lunches would support food and nutritional security along with increased domestic horticulture production.
6. Support increased **regulation and transparency in food labelling** – paving the way to greater awareness and agency by people in selecting food products that adhere to high quality 'nature-friendly' standards at every stage of production to hasten the transition to a nature positive food system.
7. Action to reduce, and where possible eliminate, **food waste** at the household and supply chain levels in line with the UK government commitment to the UN Sustainable Development Goal to reduce per capita food system waste 50% by 2030.

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