

Iain Glasgow and Bavi Sarma
Department for Environment Food & Rural Affairs
Seacole Building
2 Marsham Street
London
SW1P 4DF

4th July 2022

Dear Mr Glasgow and Mr Sarma,

Securing ambitious, ecosystem-based management of forage fish in the UK

We are writing to you in response to our recent discussion around the scope, extent and substance of the United Kingdom's proposed Industrial Fishing Strategy and the development of measures under this strategy in the English portion of the UK's Exclusive Economic Zone. We welcome the prospect of improved protection under this strategy for forage fish – the short-lived, low trophic level species that play a key role in marine ecosystems by providing food for higher trophic level species such as predatory fish, marine mammals and seabirds.

Enhanced forage fish protection represents an exciting opportunity to contribute to several existing UK and international policy commitments, principally the "Ecosystem Objective" of the UK Fisheries Act 2020 (particularly its requirement that "fish and aquaculture activities are managed using an ecosystem-based approach") and the achievement of "Good Environmental Status" (GES) under the Marine Strategy Regulations 2010. While the development of an Industrial Fishing Strategy is therefore necessary and timely, it is vital to ensure that enhanced forage fish protection is the overarching objective of this strategy and that measures to achieve that objective are ambitious, coherent and aligned with existing commitments and global best practice. The following four actions should be prioritized in the formulation of the UK's approach to forage fish protection:

1. Centre the strategy around the ecological role of forage fish, rather than their end use: The term "industrial fishing" can refer either generally to high-volume, mechanised fishing by large vessels or specifically to fisheries whose catch is intended for non-human consumption. While we acknowledge the UK's intention to focus on fisheries of the latter nature in this strategy, the term is limiting and confusing in this context. Given that the Scottish Government has already made an explicit commitmentⁱ to take action for "species which are integral components of the marine food web", and specifically supported a closure of sandeel fishing, the UK Government should prioritise action on this basis too.

We advise focussing explicitly on the ecological role of forage fish and the need for their enhanced protection as the central intent of this strategy. The United States of America's Forage Fish Conservation Act 2019 – which enshrines a legal definition of "forage fish"ⁱⁱ as well as basic principles around their precautionary management – represents global best practice in this regard and the UK should draw inspiration from it.

2. Urgently prioritise protection measures for forage fish already identified by the UK as critical to ecosystem health: Through its *Future management of sandeel and Norway pout in UK waters: call for evidence* in 2021, the UK has already received conclusive stakeholder feedback in support of comprehensive restrictions on sandeel and Norway pout fishing in UK waters. All UK administrations now recognise that urgent actions are needed for these two species.

The impact of fisheries for low trophic level fish like sandeel in depleting the availability of prey for UK seabirds is well-documented and acknowledged as a potential driver in the failure to achieve GES for marine birds, the only indicator moving away from target under the Marine Strategy Regulations. The recent outbreak of avian influenza amongst the UK's internationally important breeding seabird colonies increases the need to remove pressures on them and the marine environment. We recommend that the UK Government and the devolved administrations seize this opportunity to secure a closure of the UK EEZ to sandeel fishing as a priority i.e. ahead of the development of an Industrial Fishing Strategy.

3. Ensure the inclusion of all species playing a critical role in marine food webs in the strategy: While existing stakeholder information and ecological urgency necessitate action on sandeel and Norway pout, it is also critical that the strategy does not limit itself to these species. While the current state of evidence does broadly support the notion that the largest ecological gains could be made by precautionary management of these two species, at least 13 additional species that occur in UK waters play important roles in the diets of higher trophic level predators and should be considered in the strategy. An indicative table is shown below (Table 1) that briefly outlines the ecological rationale for inclusion of these species (this table is not intended to be exhaustive).

The strategy should be the basis for a robust management system for forage fish – one that is interoperable with the Joint Fisheries Statement and Fisheries Management Plans – rather than a framework of bespoke approaches for a selective and limited number of species.

4. Consider (and anticipate) ramifications of the new strategy for international forage fish management: Whatever form of management is adopted for forage fish species in the UK, the strategy and its associated measures will have consequences for other fishing parties in the Northeast Atlantic, particularly the European Union and Norway. These include the potential to displace existing effort on sandeel and Norway pout, as well as for more intensive exploitation of other forage fish species. We advise the UK to demonstrate a committed approach to forage fish protection by ensuring transparent and close collaboration with these neighbouring parties.

One proactive means of achieving this would be to seek a thorough evaluation of the current management strategy for the four North Sea sandeel stocks by the International Council for the Exploration of the Sea (ICES), ideally jointly with other fishing parties. A manager-led and stakeholder-inclusive Management Strategy Evaluation (MSE) by ICES would be an ideal opportunity to account for the UK's domestic measures in how fishing opportunities are identified, to develop ecological management objectives for sandeel fisheries and to explore more robust means of establishing catch limits (for example, exploring the “ecological multipliers” approach of better accounting for seabird and other higher trophic level predation in forage fish scientific advice).

We hope the above priority actions are helpful in developing the UK's approach to managing critical species in marine food webs, thereby driving nature's recovery at sea. We strongly support the UK in developing a new approach that is centred around the ecological importance of forage fish, comprehensive in which species it applies to, and which urgently implements effective protection for sandeel and Norway pout. We look forward to discussing this with you further.

Yours sincerely,

Daniel Steadman, The Pew Trusts; Ruby Temple-Long, Royal Society for the Protection of Birds; Jenni Grossmann, ClientEarth; Jonny Hughes, Blue Marine Foundation; Clara Johnston, Marine Conservation Society; Melissa Moore, Oceana; Sarah Dolman, Whale and Dolphin Conservation

ⁱ Action 11 in Scotland's Future Fisheries Management Strategy (2020) includes a commitment to delivering an ecosystem-based approach to management including '...restricting fishing activity or prohibiting fishing for species which are integral components of the marine food web, such as sandeels'

ⁱⁱ In defining the term 'forage fish' in the USA, the following factors will be considered to determine whether a species is covered by the definition, through the species' lifecycle 1) is at a low trophic level, 2) is generally small-to intermediate sized, 3) occurs in schools or other dense aggregations, 4) contributes significantly to the diets of other fish, marine mammals or birds' and 5) serves as a conduit for energy transfer to species at a higher trophic level.

Table 1. Species in UK waters conforming to at least one of the two critical “forage fish” definitions in US Forage Fish Conservation Act 2019 (“at a low trophic level” and “contributes significantly to the diets of other fish, marine mammals or birds”). Red indicates strong definition alignment, green indicates weaker alignment.

Family	Species	Trophic level ¹	Presence in predator diets ²			2019 catches in ICES rectangles surrounding UK waters (t) ⁵
			Predatory fish ³	Marine mammals ³	Seabirds ⁴	
Anchovies (Engraulidae)	European anchovy (<i>Engraulis encrasicolus</i>)	3.1	n/a	n/a	1	4,705
Boarfishes (Caproidae)	Boarfish (<i>Capros aper</i> + other Caproidae spp)	3.1	n/a	n/a	1	1,929
Cods and haddocks (Gadidae)	Blue whiting (<i>Micromesistius poutassou</i>)	4.1	n/a	n/a	2	553,879
	Norway pout (<i>Trisopterus esmarkii</i>)	3.2	3	3	2	56,409
	Poor cod (<i>Trisopterus minutus</i>)	3.7	n/a	n/a	2	2
Dragonets (Callionymidae)	Dragonet (<i>Callionymus lyra</i> + other Callionymid spp)	3.3	n/a	n/a	2	1
Herrings, shads, sardines, menhadens (Clupeidae)	Atlantic herring (<i>Clupea harengus</i>)	3.4	3	3	4	526,903
	European Sprat (<i>Sprattus sprattus</i>)	3	3	1	4	157,630
	European pilchard (sardine) (<i>Sardina pilchardus</i>)	3.1	n/a	n/a	1	17,338
Mackerels, tunas, bonitos (Scombridae)	Atlantic mackerel (<i>Scomber scombrus</i>)	3.6	n/a	n/a	4	482,307
	Atlantic horse mackerel (<i>Trachurus trachurus</i> (+ other <i>Trachurus</i> spp))	3.7	n/a	n/a	1	63,232
Needlefishes (Belonidae)	Garfish (<i>Belone belone</i>)	4.2	n/a	n/a	2	27
Rocklings (Lotidae)	Three-bearded rockling (<i>Gaidropsarus vulgaris</i> + other Lotidae spp)	3.5	n/a	n/a	4	80
Sand lances (Ammodytidae)	Sandeel (<i>Ammodytes marinus</i> + other ammodytid spp)	3.3	3	5	5	328,128
Smelts (Osmeridae)	European smelt (<i>Osmerus eperlanus</i>)	3.5	n/a	n/a	1	163

1. Froese, R., Pauly, D., 2012. FishBase. World Wide Web Electronic Publication. Version (10/2012). www.fishbase.org. NB Lower values = lower trophic levels.
2. Scores taken from published studies of food webs in North Sea (ref 3) and in seabird populations in the UK (ref 4). 1 = Species present in very few predator diets, at low (<20%) levels, 2 = Species present in some (<50%) predator diets, at low levels, 3 = Species present in most (>50%) predator diets, at low levels, 4 = Species present in some predator diets, at high (>20%) levels, 5 = Species present in most predator diets, at high levels. N/A = Forage fish species not included in predator diet study.
3. Engelhard, G. H., Peck, M. A., Rindorf, A., C. Smout, S., van Deurs, M., Raab, K., ... & Dickey-Collas, M. (2014). Forage fish, their fisheries, and their predators: who drives whom?. *ICES Journal of Marine Science*, 71(1), 90-104. NB Covers eight predatory fish species and five marine mammal species.
4. Krystalli, A., Olin, A., Grecian, J., Nager, R. 2019. *Seabird diet DB: Seabird Diet Database*. R package version 0.0.1. <https://github.com/annakrystalli/seabirddietDB>. NB Covers 16 populations of UK seabirds.
5. ICES. 2021. *Official Nominal Catches 2006-2019*. Version 19-10-2021. Accessed 23-06-2022 via: <http://ices.dk/data/dataset-collections/Pages/Fish-catch-and-stockassessment.aspx>. ICES, Copenhagen. NB Catches by all nations in ICES areas surrounding UK (ICES divisions IVa, b, c, VIa, b and VIIa, d, e, f, g, h).