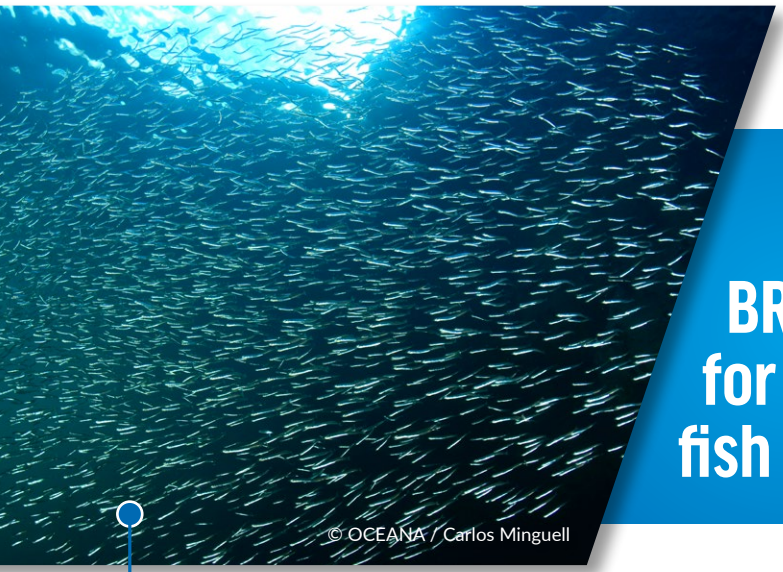
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BRIEFING: Recommendations for the management of forage fish in the Northeast Atlantic

About forage fish

Forage fish, also called prey fish, are small to medium-sized schooling species that live in pelagic waters, such as Norway pout, capelin, anchovy, sandeel, sprat and more. They typically feed on planktonic species, contributing significantly to the diets of many marine animals higher up the food web. These small fish make up over half of the total fisheries landing in the Northeast Atlantic caught for human consumption and industrial purposes. They form the backbone of marine ecosystems and the carbon cycle by being a staple diet of many marine predators (seabirds, marine mammals, and predatory fish) and transferring critical energy, carbon, and nutrients across the food web.


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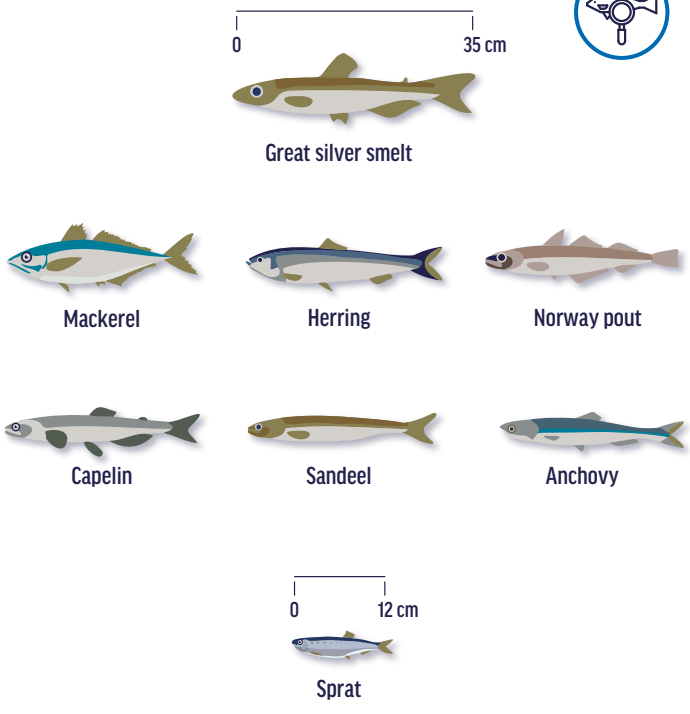
Need for better management standards

Forage fish warrant careful fisheries management plans as they are essential for maintaining a balanced marine ecosystem, are sensitive to degradation and environmental change given their proximity to the bottom of the food web and are increasingly vulnerable to climate change. In the Northeast Atlantic, the main forage fish species targeted by commercial and industrial purpose fisheries include **blue whiting, capelin, greater silver smelt, herring, horse mackerel, mackerel, Norway pout, sandeel, sardine and sprat.**

Current objectives under European fisheries framework regulations, such as the Common Fisheries Policy (CFP) and the UK Fisheries Act 2020, require the adoption of an ecosystem and precautionary approach to fisheries management. This is in recognition of the need to ensure that negative impacts of fishing activities on the marine ecosystem and sensitive species are minimised and, where possible,



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Examples of forage fish species.

reversed, but also to safeguard ecosystem functioning, transition beyond single species yield focus, and be adaptive to tackle risks, such as climate change.

Implementing the ecosystem and precautionary management to forage fish management in the Northeast Atlantic needs to be better translated into decision-making. Current management for forage fish does not fully account for the ecological role of the forage fish in the ecosystem, particularly their ability to supply enough food for marine predators, or emerging environmental pressures, such as stock and ecosystem-level response to climate change.

Catch limits are often set not in line with the scientific recommendations and stocks are maintained at low population levels, with many having faced multiple overfished events (e.g., North Sea sandeel in area 2r). Stock, ecological, and biological information on forage fish is often lacking (population levels, age composition) and there is a degree of uncertainty surrounding their population estimates. This is in part due to them being an easy fishing target often making them appear more abundant than they are, as well issues with misreporting of catch as other species, all warranting a high level of precaution in their management. Notwithstanding, many of the stocks have distributional ranges crossing multiple jurisdictional boundaries and their management approaches in these countries should be aligned.


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How to improve the conservation and exploitation of forage fish

With firm political commitments in place, decision-makers need to fulfil their obligations to transition away from a single species management approach to an approach that considers the full impact of the fisheries, not only on the target fish, and also the marine ecosystem and non-target species. To improve the exploitation and conservation of forage fish, enabling them to fulfil their role in the ecosystem, Oceana urges Northeast Atlantic decision-makers to consider the following recommendations:

1 **Catch limits should be precautionary and set below F_{MSY}.** Catch limits for all stocks should be set more precautionary to preserve their role in the ecosystem, account for data uncertainties and limitations surrounding stock status (including population estimates and misreporting of catch) and environmental pressures. This approach should be kept until more comprehensive short to long term monitoring and management plans have been put in place (see point 4 below). Catch limits should be set at no more than F MSY_{lower}, or, in absence of F_{MSY} ranges, well below F_{MSY} point value. Adoption of catch limits for stocks below B_{lim} (including for Atlantic Iberian waters anchovy, western horse mackerel, Irish Sea, Celtic Sea and southwest of Ireland herring, western Baltic herring, central and southern North Sea sandeel, and Bay of Biscay sardine), should be conditional to the recovery of the stock above this reference point and where possible above $MSY_{Btrigger}$.

2 **Apply robust science-based reference points.** Limit and target reference points should be adapted to include ecosystem considerations – species interactions, environmental influences - into decision-making, opposed to the current integration of only limited ecological and environmental considerations that aim to protect the target stock solely. In particular, the inclusion of a new reference point that identifies when predators are not getting enough forage (urgently needed for North Sea sandeel, and Bay of Biscay sardine), as well as a general CUT-OFF biomass trigger reference point (i.e., 20-40% unexploited biomass) that identifies when stock biomass is approaching a level where ecosystem considerations will be impaired, requiring immediate action. In the absence of this new reference point, an interim reference point aimed at obtaining 75% unexploited biomass might limit ecosystem impacts while delivering acceptable yields of low–trophic level species.[1]

3 **Protect marine habitats of ecosystem importance.** Activities that have a negative impact on the forage fish essential habitats, including nursery and spawning grounds, should not occur. Therefore, spatial and/or temporal restrictions of these anthropogenic activities, including fishing, should be adopted to protect these habitats (e.g., ban the dumping of dredge spoil and marine aggregates extraction in spawning grounds of herring). Unless the effects of these activities have been assessed and shown not to be detrimental to the productivity of the stock restrictions should be kept.

4 **Create long-term, ecosystem-based fisheries management plans.** For each stock that is targeted, long-term management plan should be adopted. The long-term plans should be aligned with ecological objectives described above and moved away from short-term management thinking towards informing decision makers on the overarching management goals and allow to better account for trade-offs between socio-economic considerations and ecological risks.

5 **Ban the expansion and opening of new forage fisheries.** If not, conduct a complete analysis of the ecosystem impacts that a new fishery would have, followed by the creation of an ecosystem-based management plan, before expanding or opening a new forage fishery in the Northeast Atlantic. Exploitation of forage fish for industrial purposes should be avoided and exploitation of the forage fish species that are key components of the marine ecosystem, such as sandeel, should be banned.

6 **Agree on a shared strategy for species crossing management boundaries.** Align and harmonise stock management objectives and stock assessments among Northeast Atlantic countries. This is particularly relevant to mitigate estimation biases and manage risks associated with localized depletion and overfishing of the shared forage fish stocks.

7 **Research the extent of misreporting and increase control of the fishing fleets.** Thorough research should be conducted on forage fish misreporting (for instance, often sprat is misreported as herring) and how this affects stock assessments. Increase surveillance monitoring and control of fishing vessels to reduce misreporting, ensure stocks are managed within their ecological bounds, and catches landed are not misidentified or misreported as a different species. A buffer of uncertainty should be included in stock assessments to account for issues of misreporting.

8 **Increase research capacity and apply ecosystem-level scientific advice to forage fisheries management.** Catch limits should be based on the best scientific research and modelling of ecosystem interactions and environmental variables as opposed to only fisheries data. Research should prioritise identifying forage fish species and their distribution, boundaries, habitat use, and movements, across management areas, their dependent predators, substitute prey sources for each forage fish, spawning, and nursery habitats.

9 **Collect information on stocks and improve reliability of stock assessment.** Catch surveys that include all sources of mortality, including data on discards, recreational catch, and more, should be conducted on an annual basis to improve the reliability and fill gaps in stock information and assessment. Estimates of stock populations should not be based primarily on catch histories but also expand on using other data sources (data from law enforcement, experts, academic literature[2]) and techniques (genetic-id work[3]).

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