

Re: Defra call for evidence on future management on Sandeels and Norway Pout

Marine Ingredients Denmark (MID) represent the producers of fishmeal and fish oil in Denmark. With a focus on sustainability and high quality, the Danish industry is the leading producer in Europe and number 9 globally. Our sector contributes significantly to economic growth and employment in coastal regions.

MID hereby gives input to the DEFRA “Call for Evidence on future management of Sandeels and Norway pout”.

Fishmeal and fish oil play an essential role in global food security

Fishmeal and fish oil are important marine ingredients and the cornerstone of providing healthy seafood to consumers worldwide. Produced from both forage fish and by-products from the fish processing industry, marine ingredients are key ingredients for aquafeed, providing aquaculture fish with recognized superior nutrition. Those nutrients are then passed on to a very wide range of consumers.

Fishmeal and fish oil play an essential role in global food security, providing feed for a growing global population. The world's population has quadrupled in the last 100 years, and will reach an estimated 10.9 billion people by the end of the century, according to the UN. Farmed fish has a vital role to play in feeding a growing global population and aquaculture production is projected to reach 109 million tonnes in 2030, an increase of 32 percent (26 million tonnes) over 2018.⁽¹⁾

As a critical source of nutrition generating relatively low average environmental pressures, blue foods present an opportunity to improve global nutrition with lower environmental burdens, in line with the Sustainable Development Goals to improve nutrition (Goal 2), ensure sustainable consumption and production (Goal 12), and sustainably use marine resources (Goal 14).⁽²⁾

Small pelagics: Low carbon footprint and well documented health effects

Fish constitute 29% of the global animal biomass and is a sustainable alternative to land-based protein sources. Fish is a renewable resource that can be harvested repeatably. Ocean fisheries don't cause soil erosion, don't blow away the topsoil, don't use any significant freshwater, don't use antibiotics and don't have anything to do with nutrient releases, that devastating form of pollution that causes algal blooms in freshwater and dead zones in the ocean. After extensive studies, it turns out that some fish have the lowest greenhouse gas footprint per unit of protein. Better even than plants. Sardines, herring, mackerel, anchovies

¹ FAO, The state of world fisheries and aquaculture 2020

² Environmental performance of blue foods, August 2021, Jessica A. gephart et.al

and farmed shellfish all have a lower GHG footprint than plants, and many other fisheries come close. Small pelagic fish species have a very low carbon footprint and are therefore one of the most sustainable sources of protein ⁽³⁾.

Small pelagic fish fisheries, sometimes called reduction fisheries or industrial fisheries, target widely abundant short-lived fish species with high biomasses that has a relatively little or no potential for direct human consumption.

Marine ingredients are needed to produce healthy fish rich in omega 3. Access to fishmeal and fish oil is therefore essential for further development of global aquaculture production.

The health benefits of intake of pelagic fish are well documented. Fishmeal and fish oil provide all essential amino acids, minerals, phospholipids and omega 3 fatty acids (DHA and EPA) and bring those into the human diet when used in aquaculture production. EPA and DHA are central components in all cell membranes – particularly important for the development of the brain and vision early in life. EPA and DHA contributes to the function of the heart, blood system and immune system.

- Reduces blood pressure
- Reduces risk of cardiac attack
- Reduces inflammation and formation of blood clots.

Ecological, Economic and Social impact of the sandeel and Norway pout fisheries

Fishing opportunities, TACs and quotas, in Europe are based on independent, scientific advice from the International Council for the Exploration of the Sea (ICES). ICES provides scientific advice on the marine ecosystem to governments and international regulatory bodies that manage the North Atlantic Ocean and adjacent seas. ICES gives annual advice on fishing opportunities for many fish stocks in the Northeast Atlantic including sandeel and Norway pout ⁽⁴⁾. ICES also provides Ecosystem and Fisheries Overviews.

How does the current ICES advice and management system account for needs of sandeel and Norway pout predators?

The current ICES advice and management system for fish stocks is based on the ICES principles for Ecosystem-based Fisheries Management (EBFM) where scans and evaluations of new knowledge from inside and outside the ICES community are performed to assess if the knowledge can support state-of-the-art on meeting conservation, management and sustainability goals. The ecosystem approach is integrated into the reference points, which are based on the current state of the ecosystem and updated to reflect any effects of the ecosystem on stock dynamics. Where appropriate, such as with forage fish, estimates of age based and/or temporal variation of natural mortality are built into the stock assessments to consider the implications for fish for top predators or density effects on stock dynamics. The ICES advice for both sandeel and Norway pout is based on these principles.

³ <https://sustainablefisheries-uw.org/environmental-costs-of-food/>

⁴ <https://www.ices.dk/advice/Pages/Latest-Advice.aspx>

Sandeel

For sandeels specifically, evidence of the role of sandeel in the marine environment is outlined in ICES stock assessment benchmark reports, with the 2016 report (ICES, 2016) being the most recent. The report in detail describes for which species there is evidence of impacts of sandeel density on predator performance based on conclusions in the highly cited reference Engelhard et al. 2014. For marine mammals, the reported effects are on pupping dates of grey seals. For other species, there are no other published effects. For seabirds, 8 species show declines in breeding numbers and/or breeding success in sandeel assessment areas 4 (Firth of Forth) and 7 (Shetland). Citing Furness and Tasker (2000), the report states that seabirds in these areas are more sensitive to sandeel abundance than seabirds in other areas. Sandeel in these areas furthermore show lower individual somatic growth than sandeel in other areas. As a result, there are currently areas closed to commercial fishery in both sandeel assessment areas 4 and 7. For predatory fish, links between local sandeel abundance and condition and the spatial overlap of the distribution of cod and sandeel and growth of cod have been demonstrated. However, no study has shown a link between annual growth of predatory fish and sandeel abundance.

The sandeel assessments in areas 1r and 4 take into account that the biomass of the stock removed by natural predators and other natural sources is high and substantially greater than the catches of sandeel both in assessments of historical stock development and when forecasting fishing opportunities. The assessment of sandeel in area 1r uses annually varying estimates of the proportion of the stock that dies from predation to allow the catch options to vary as natural predators increase in abundance and thereby consume more sandeel.

Recent years have demonstrated a lower recruitment of new sandeel, lower growth of individual sandeel and increased mortality from natural predators in area 1r. This has led to a substantial decrease in the catch advice given by ICES from 2011 onwards. In area 4, a period of very low recruitment following the closure of the Firth of Forth area in 2000 ended in 2009 with a large year class. This year class was not related to a high abundance of spawning fish. Since 2014, recruitment has been strong in the area.

Norway pout

Species specific considerations in Norway pout fishing are outlined in ICES stock assessment benchmarks report for Norway pout (ICES, 2016). The natural mortality of Norway pout is high (Nielsen et al., 2012, ICES 2021) which is also taken into account in the assessment and management of this species. Norway pout is eaten by series of predators, where saithe is one of the main predators. Cormon et al. (2016) suggests that forage fish availability has an effect of growth of saithe, but also pointed out that Norway pout alone is not a sufficient descriptor of food availability for this predator. Engelhard et al. 2014 did not report any evidence of effect of low abundance of Norway pout on saithe or other predators eating Norway pout.

The Danish sandeel and Norway pout fisheries

The Danish sandeel fishery in the North Sea dates back to 1953. The sandeel fishery took - and still takes place in April-July. The total sandeel landings show an increase in the sixties and a drastic decline after 2002 (Fig. 1). After 2002 sandeel landings are at a lower level and more fluctuating from year to year.

The Norway pout fishery started in the late fifties (Fig. 2). The fishery laid the base for a fleet which almost exclusively is engaged in fisheries for small pelagic fish species.

Sandeel is by far the most important species for the Danish small pelagics fisheries. Sandeel is the main target species in the 2nd quarter, whereas Norway pout is a target species in the 3rd, 4th and 1st quarter.

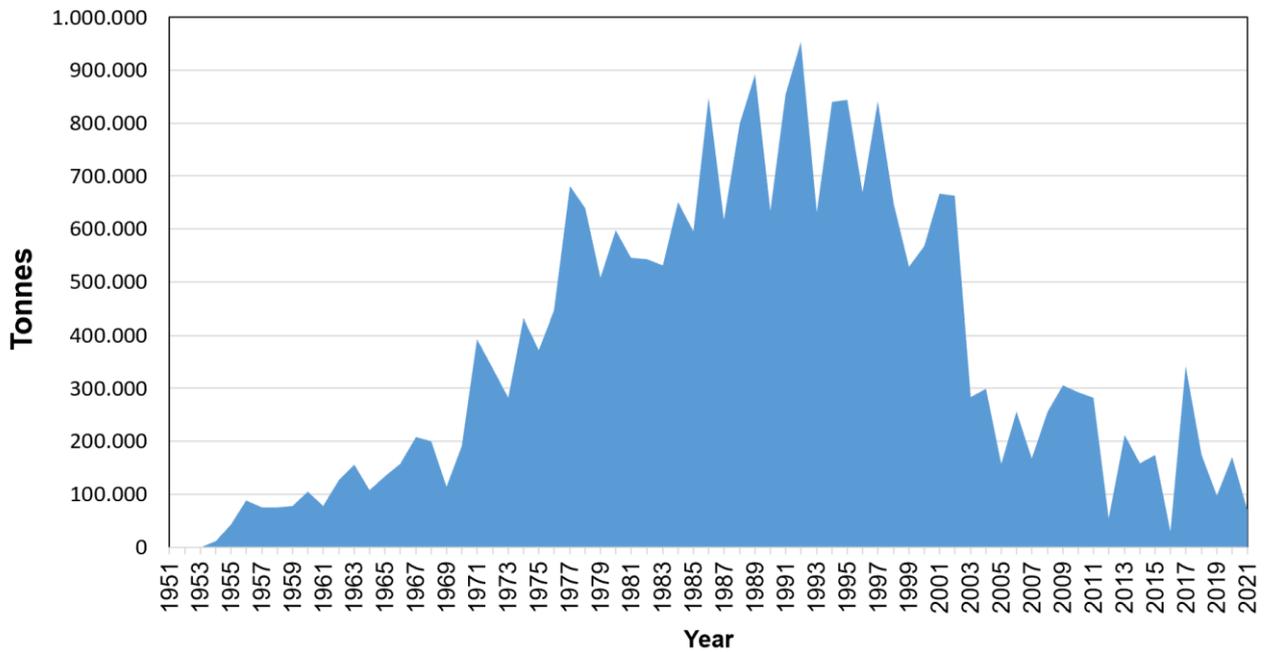


Figure 1. Sandeel landings from the North Sea 1951-2021. Data from FAO and the Danish Agency for Fisheries.

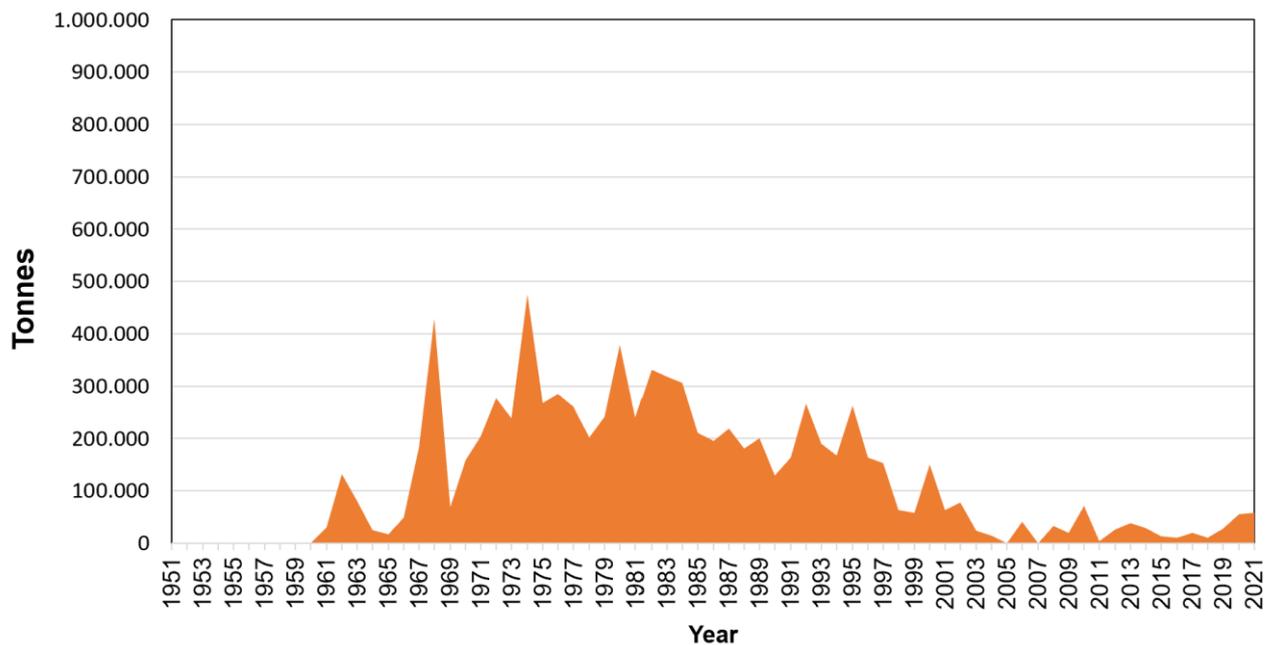


Figure 2. Norway pout landings from the North Sea 1951-2021. Data from FAO and the Danish Agency for Fisheries.

MSC and Marin Trust

The fisheries for sandeels and Norway pout are MSC certified and Marin Trust approved.

In the MSC certification process the “*values of sandeels and Norway pout to the marine ecosystem*” was evaluated under Principle 2: *Ecosystem impacts: Fishing operations need to be managed to maintain the structure, productivity, function and diversity of the ecosystem upon which the fishery depends, including other species and habitats*. With respect to this principle, sandeel and Norway pout both scored 82.3 points, which is above the required threshold of 80 ⁽⁵⁾.

The MarinTrust Standard is an initiative of Marine Ingredients Certifications Ltd. and has been developed as a credible, robust tool that enables producers of raw materials in the fishmeal and fish oil industry to demonstrate responsible practices⁽⁶⁾.

The European fishmeal and fish oil industry has a dedicated focus on responsible sourcing and has developed an **Industry standard draining and weighing of unsorted pelagic landings for fishmeal and fish oil production**. See: <https://effop.org/about-european-fishmeal/effops-industry-standard/>. The industry standard is a supplement to the current national legislation and international agreements. It has been developed based on the FAO Code of Conduct for Responsible Fisheries and the post-harvest practices for responsible fish utilisation stated herein.

According to the regulation on registration and control of information on fish that are landed directly and fish that is imported (BEK no. 290 of 25/03/2020), individuals and companies in Denmark who buy unsorted pelagic bulk landings directly from fishermen must, effective as of April 1st 2020, ensure that the fish is weighed during unloading by an accredited inspection company, and carry out sampling for species sorting according to a sampling plan established by the legal authorities. For the handling of weighing and requirements of species sorting regarding landings and deliveries to Danish fishmeal and fish oil factories - watch the information video: <https://maring.org/news-events/saadan-sikrer-vi-gennemsigtighed-og-lige-vilkaar/>

Economic and Social impact of the sandeel and Norway pout fisheries

The average annual export value of fishmeal and fish oil from the Danish sandeel landings 2016-2020 was 57 mio. €/year. Of this 37 mio. € (66%) was from sandeels caught in UK waters.

The average annual export value of fishmeal and fish oil from the Danish Norway pout landings 2016-2020 was 8.8 mio. €/year. Of this 8.2 mio. € (93%) was from Norway pout caught in UK waters.

The Danish fishmeal and fish oil factories contribute to growth and development in coastal communities and create many jobs in remote areas of Denmark. In 2019, the factories employed ~500 workers and

⁵ <https://fisheries.msc.org/en/fisheries/dfpo-and-dppo-north-sea-skagerrak-and-kattegat-sandeel-sprat-and-norway-pout/>

⁶ <https://www.marin-trust.com/marintrust-approved-whole-fish>

derivative economic activity in the local communities of additionally 1,250 jobs in mainly Northern and Western Jutland. A full description of the economic footprint is given in the report “Danish fisheries and fishing industry economic footprints” (in Danish) https://maring.org/wp-content/uploads/2019/05/Opdatering-%C3%B8konomisk-fodaftryk-CE-01MAJ2019_Endelig-version.pdf

Across the world, the fisheries and aquaculture sector is a major source of employment. In 2018, an estimated 59.5 million people were engaged in the primary sector of fisheries and aquaculture. In total, about 20.5 million people were employed in aquaculture and 39.0 million in fisheries, a slight increase from 2016.⁽⁷⁾

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⁷ FAO, The State of World fisheries and aquaculture, 2020