

REPORT

Meeting: **NSAC Informal Dialogue on the future of Bottom Fishing**

Parties: **NSAC Members, speakers, observers**

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Location: **Copenhagen, Denmark**

Moderator: **Alexandra Philippe**

Rapporteur: **NSAC Secretariat**

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1 Welcome and introduction [*Alexandra Philippe, moderator*]

Alexandra Philippe, Chair of NSAC Ecosystem Working Group and moderator, welcomed participants to the NSAC Informal Dialogue on Bottom Fishing.

The session was intended to reflect on a sector vital for food, livelihoods, and coastal identity, yet increasingly scrutinized for its environmental impacts. She noted that the sector stood at a crossroads - under pressure but with opportunities for innovation, modernization, and more sustainable practices.

Our shared challenge is to bring different perspectives together through respectful dialogue, seeking common ground rather than confrontation. The goal was not to choose between food, livelihoods, and the environment, but to secure all three through balanced, sustainable governance.

Participants were encouraged to engage openly and respectfully in this safe space, all working toward a clearer understanding of opportunities, trade-offs, and paths forward.

Icebreaker session was launched through Mentimeter, asking participants to reflect on the main challenges for the bottom fishing sector presently. Most prominent responses were “objectivity”, “openness”, “public opinion”, “understanding”, followed by “blanket bans” and “demonisation.”

2 Opening address by the Chair of European Bottom Fishing Alliance [*Iván López, European Bottom Fishing Alliance*]

Iván López started his opening address by emphasizing the role of the North Sea Advisory Council in uniting stakeholders, scientists, fishing and conservation communities. Dialogue has been highlighted as the only effective path toward shared solutions.

Bottom fishing has been presented as a vital sector, representing roughly 25% of EU landings by weight and value, supporting thousands of jobs, and contributing significantly to food security and low-carbon protein supply. Many fisheries have been certified to high sustainability standards such as MSC.

Like all food production, bottom fishing interacts with the environment and requires responsibility, adaptation, and innovation. It was stressed that it should not be unfairly singled out, as comparable impacts exist across all food systems.

The industry is facing multiple challenges: strict EU legislation, reduced fishing days, high energy costs, and increasing bureaucracy. Additional burdens arise from certain EU policies and environmental measures. Despite this, the fleet size and fishing effort have been declining steadily, reflecting ongoing adaptation.

Concerns were raised regarding rising seafood imports produced under lower sustainability standards, while European producers face tighter restrictions. This imbalance was described

as distorting both markets and perceptions.

Spatial pressures in the North Sea were also noted, as competition for marine space increases with energy projects, conservation areas, and other uses. López argued that food production should remain a central priority in marine spatial planning, with fair and science-based assessments applied equally to all sectors.

The current regulatory landscape - including the Nature Restoration Law and expansion of Marine Protected Areas (MPAs) - was described as overly broad, often lacking sound impact assessments and measurable indicators. A case-by-case, science-based approach was seen as more appropriate, ensuring that closures and restoration measures are justified, proportionate, and compatible with food security objectives.

López further noted that blanket restrictions, insufficient stakeholder involvement, and politically driven narratives undermine both science and sustainability. Genuine protection must be based on management, not mere designation of protected zones.

The need for balanced, evidence-based governance was strongly reiterated. Dialogue, evidence, and responsibility were identified as guiding principles. The sector reaffirmed its willingness to collaborate toward sustainable fisheries that coexist with biodiversity and climate goals - provided that decisions are guided by science, applied regionally, and developed through inclusive dialogue.

In conclusion, bottom fishing should be regarded not as an obstacle, but as an ally in achieving food security, sustainability, and resilient coastal communities.

3 Perspectives on bottom fishing of the conservation community [*Emelie Lundqvist, Swedish Society for Nature Conservation*]

Emelie Lundqvist from the Swedish Society for Nature Conservation (SSNC), representing around 220,000 members, presented conservation society's perspective on bottom trawling. The method was described as one of the most destructive forms of fishing, causing habitat destruction, biodiversity loss, and disruption of ecosystem functions and biogeochemical cycles.

Scientific evidence was cited showing that chronic trawling impacts seafloor habitats, reduces species diversity, and undermines ecosystem resilience. Benthic organisms, including corals and sponges, are often slow-growing and recovery from trawling damage may take decades—or may never occur.

Bottom trawling also contributes to climate impacts by resuspending seabed sediments, releasing stored carbon, and increasing turbidity, which limits light penetration and affects primary production. Disruption of nutrient cycling and oxygen balance was said to weaken ecosystem stability and recovery capacity.

Bottom trawling also has high bycatch levels, including non-target and juvenile species, which

contribute to overfishing and reduced recruitment. The cumulative effect was described as a long-term decline in biodiversity, productivity, and resilience of marine ecosystems.

Recent policy developments in Sweden were outlined. The 2023 Government Inquiry (SOU 2023:20) proposed a general ban on bottom trawling in all MPAs within the trawl boundary.

This proposal, later adopted by the Swedish Government, will take effect from July 2026 and aims to safeguard sensitive seabed habitats. Limited exceptions may be allowed only for scientific purposes where conservation objectives are not compromised.

At the EU level, bottom trawling has been recognized as a major driver of benthic habitat degradation. The EU Marine Action Plan of 2023 sets a goal to phase out bottom fishing in all MPAs by 2030. Scientific consensus was said to be clear on its negative effects on biodiversity, ecosystem functioning, and carbon storage.

A transition toward non-destructive, selective fishing methods—such as traps, longlines, and passive gear—was recommended in a future vision for demersal fisheries. Investment in research, monitoring, and data collection was essential to inform evidence-based management. Alignment of fisheries legislation with environmental directives was also proposed to support ecosystem-based management.

Economic reform through the removal of harmful fuel subsidies that sustain overcapacity and destructive fishing practices was also recommended. These reforms could be advanced via EU and WTO mechanisms.

Lundqvist advocated for stricter spatial management approach. In addition, bottom trawling should be prohibited within 12 nautical miles, with fishing permitted only in specific, environmentally assessed areas. In the long term, it was recommended that bottom trawling be banned throughout Sweden's EEZ, with limited, conditional exemptions.

In conclusion, bottom trawling causes severe ecological harm and policy efforts in Sweden and the EU should continue toward its phase-out. A combination of science-based management, policy reform, and stakeholder collaboration was seen as essential for achieving sustainable fisheries and resilient marine ecosystems.

3.1 Q&A

Michael Andersen, DFPO, thanked Lundqvist for presenting conservation community's contribution to the debate. He acknowledged that trawling has environmental impacts but emphasized that not all trawling operations cause significant harm. While trawling on coral reefs has severe and well-documented effects, most trawling does not occur in sensitive habitats, as these areas are neither economically viable nor productive for fishing. Certain areas, including parts of Swedish waters, hold limited ecological value and lower biodiversity, and that more selective forms of trawling exist, such as those practiced in Kosterhavet.

Andersen called for a balanced approach—recognizing both the environmental impacts and the role of trawling in food production and livelihoods. He suggested that management should distinguish between high-impact and low-impact areas and methods, aiming for coexistence between conservation and sustainable fishing.

Sofie Smedegaard Mathiesen, DFPO, raised a question regarding Sweden’s recent measures on bottom trawling and their possible effects on other ecosystem components beyond habitats. She sought clarification on whether increased use of passive gears in MPAs in Swedish waters has been observed or anticipated, and what potential impacts, such as ghost nets or interactions with marine mammals, might result. Would a ban on passive gears also be pursued in Sweden when an MPA is designated for birds?

Emelie Lundqvist responded that, ideally, in the view of SSNC no industrial fishing should be allowed in MPAs.

Michel Kaiser from Heriot-Watt University asked what advice SSNC has provided to the Swedish government concerning a just transition for affected fishers, including economic mitigation measures for those whose livelihoods and families depend on the industry.

Emelie Lundqvist responded that SSNC primarily represents nature, while socio-economic perspectives are considered secondarily. Their focus on ban on bottom trawling in MPAs was emphasized, rather than a general ban on fishing. She noted that fishing is presently not required to undergo environmental impact assessments, unlike other marine activities, and the priority was said to be addressing nature’s needs, while leaving broader socio-economic considerations to other actors.

Peter Breckling, German Fishing Association, noted a lack of data supporting NGO contributions, described primarily through statements without supporting evidence. A question was raised as to why quantitative information on species numbers, population densities, and ecosystem status before and after bans was difficult to obtain.

He wished for figures for specific trawling years be provided, allowing comparison with the impacts of terrestrial food production. Attention was drawn to the fact that 70% of the planet is marine, yet the perceived impacts of anthropogenic activities in marine areas are treated differently than on land.

He added that existing data, including Dutch investigations of closed areas over ten years, showed no significant differences between fished and unfished areas. The importance of such quantitative information was highlighted as essential for developing informed solutions for all national MPAs.

Emelie Lundqvist responded that deep water research is expensive and difficult to conduct, but agreed to provide references underpinning the statements in the presentation.

Marc Eskelund, FSK PO, noted that while his organization representing small-scale, low-impact fisheries was not being directly addressed, it could contribute to solutions such as the establishment of trawl-free zones. Confusion was expressed regarding the SSNC’s position, as support for passive, seal-safe gears and opposition to fishing in certain areas had been

mentioned simultaneously. Excessive restrictions on gear types could effectively result in full closures rather than trawl-free zones, thereby excluding small-scale and coastal fisheries. He noted that a balance should be maintained to allow low-impact, commercially viable fishing while minimizing ecosystem disturbance.

4 Norwegian and Scottish perspectives on the management of bottom fisheries

4.1 Norwegian perspective [*Alessandro Astroza, Norwegian Fishermen's Association*]

Alessandro Astroza from Norwegian Fishermen's Association provided a brief of the Norwegian perspective on bottom-fisheries management. Trawling and Danish seine fisheries remain active and economically important in Norwegian waters, particularly in the North Sea and the Barents Sea, accounting for an estimated 40% of total catch volume.

Beam trawling and shell dredging have been banned for several years, while selective gear development and incremental improvements continue through public and private initiatives. Monitoring and discard bans are implemented through the Fisheries Monitoring Centre in Bergen, though full coastal oversight remains challenging.

Climate change and its integration into fisheries regulation were described as ongoing areas of work. A new Marine Protection Act, entering into force in January next year, will extend protection beyond 12 nautical miles, addressing areas not previously covered.

Recent political motions to reduce bottom trawling impacts were discussed but not adopted, reflecting ongoing debate similar to that within the EU. Norway's commitment to the Global Biodiversity Framework target of protecting 30% of marine areas was highlighted, though uncertainty remains about what measures qualify as effective conservation. It was emphasized that the lack of distinction between strict and moderate protection complicates communication and affects the reputation of the fishing sector.

Concerns were raised about exaggerated global studies, such as those claiming that bottom trawling emits more CO₂ than air traffic, which have negatively affected public perception and hindered balanced discussion.

A recent national example was cited: the introduction of no-fishing zones in the Oslofjord, where all fishing—including small-scale and recreational—will be prohibited from January. The measure was described as symbolic, as multiple environmental pressures affect the area, yet fisheries bear most of the restrictions.

It was emphasized that fisheries depend on clean, productive oceans, and that discussion is needed on acceptable levels of impact. An ecosystem-based approach to management was said to be evolving, though limited resources and increasing complexity pose challenges.

The importance of recognizing the fishing sector's continuous innovation and adaptation to changing conditions was underlined. It was concluded that realistic alternatives to trawling

must be assessed carefully, as economic viability and consumer willingness to pay remain decisive factors.

4.2 Scottish perspective [*Kenny Coull, Scottish Whitefish Producer Association*]

A Scottish perspective on bottom trawling was provided by **Kenny Coull** from the Scottish Whitefish Producers Association, who has participated in the stakeholder process for Scotland's MPA network since 2011.

The Scottish MPA process began in 2010 under the Marine (Scotland) Act for inshore waters and the UK Marine and Coastal Access Act for offshore areas. Engagement with fishers was initially limited, but efforts were made to increase participation. The aim was to establish a well-managed network meeting national and international commitments by 2016. While designated sites exist, full management measures remain incomplete.

The network was designed to protect specific habitats and species such as burrowed mud, flame shell beds, coral gardens, and sponge aggregations. Management was intended to be site-specific, evidence-based, and focused on sustainable use. Socio-economic factors were to be considered, and stakeholder engagement occurred through multiple national and regional meetings.

Subsequent expansions included protection for seabirds, cetaceans, marine mammals, and priority marine features (PMFs). The first phase of inshore MPAs, primarily on Scotland's west coast, targeted 15 sensitive areas, with a second phase currently under preparation.

In 2022, the introduction of Highly Protected Marine Areas (HPMAs) was announced following the Agreement between the Scottish Government and the Green Party. Despite initial assurances that no such legislation was planned, consultation began soon after. Of 4,502 responses, 76% opposed the proposal, citing unrealistic timelines and a blanket approach. As a result, the government decided not to proceed with HPMA implementation.

Further consultations on PMFs identified 11 features requiring additional protection. While blanket fishing restrictions were rejected, localized measures such as a 0.5-mile limit are being considered.

Recent offshore MPA consultations have continued post-Brexit, maintaining previous objectives. Two management options were proposed: one based on prior stakeholder work, and another involving total bans on mobile bottom-contact gears. Final outcomes largely aligned with earlier objectives, though stricter measures were introduced in Central Fladen and East of Gannet and Montrose Field following updated conservation advice.

In summary, protection for burrowed mud was increased from 30% to 70% of the area. The fishing industry expressed satisfaction that government objectives for site management were largely maintained, allowing limited sustainable activity within many MPAs. Full-site restrictions in five areas were supported, though disappointment was noted regarding stricter measures in two sites, whose rationale was nonetheless acknowledged. Concern had been

raised over potential external pressures influencing outcomes, but the final decisions were viewed as balanced, recognizing the social, cultural, and economic importance of fisheries as a renewable food source. The UK Government's recent confirmation that no whole-site bans on bottom-towed gear will be introduced in MPAs was welcomed, particularly in relation to Phase 3 of the MMO consultation.

It was concluded that, despite pressures and challenges, the process has largely delivered balanced outcomes, with continued engagement between the fishing industry, conservation bodies, and government regarded as essential.

4.3 Q&A

Dale Rodmell, Eastern England Fish Producers' Organisation, noted that although broad support from the industry, including his organisation, was observed for measures directed to towed gear, less support was noted for static gear closures, such as nets and lines, effective from October. The issue of static gears was introduced later in the process, and scientific evidence regarding their impacts was limited. Interactions between gear types and distinctions among different static gears were largely unconsidered, resulting in a mostly blanket management approach. A similar approach is currently proposed in the English offshore consultation, highlighting limitations in evidence.

Kenny Coull noted that during the stakeholder process, regular meetings with industry were held, but static gear in offshore areas was addressed only late and initially treated with a relaxed approach. Post-Brexit, as more evidence was gathered, the approach was changed. Limited involvement occurred from SWFPA's side, as offshore static gear is minimal, but concerns were raised by other organizations whose vessels are linked to this fishery, since new measures were proposed that had not been discussed during engagement.

5 Scientific perspective on and social perception of bottom trawling [*Michel Kaiser, Heriot-Watt University*]

Michel Kaiser, co-director of the Lyell Centre for Earth and Marine Science at Heriot-Watt University, has worked on bottom trawling and sustainable fisheries for over 30 years. Research at the Lyell Centre, involving 90 staff and students, focuses on climate change, carbon sequestration, and sustainable fisheries.

The social perspective on bottom trawling has been shaped by media, including the Ocean film with David Attenborough, which often present worst-case scenarios. While some areas, such as seagrass beds and deepwater coral reefs, should not be trawled, the full extent of sensitive areas remains unknown. Environmental impact assessments, such as those by NAFO, have been seen as pragmatic solutions to avoid risk to the unknown presence of sensitive habitats and features.

Calls for more MPAs may be met with global seafood displacement, which could increase environmental and human rights risks in regions like Southeast Asia. Public perception of trawling is largely negative, though most people are unaware of its role in food production. Approximately 25% of global marine catches come from bottom trawling, which varies in impact. Otter trawls are less damaging than beam trawls and shellfish dredges or hydraulic dredges. Well-managed fisheries in Europe, the US, and Australia, have shown stock recovery and reduced seabed footprint, while unmanaged fisheries in Southeast Asia remain problematic.

The seabed areas impacted by trawling have been mapped for 24 large regions of the ocean, showing high recovery potential in most regions. The relationship between seabed penetration and benthic impact is well understood, and gear modifications can significantly reduce environmental impact. Precision fishing, using detailed mapping and gear tracking, is recommended to minimize spatial footprint and improve sustainability.

A heat map showed scallop dredge fishing activity around the UK. The left map indicated the overall distribution, while the right map showed that 90% of the fishery's total value was generated from a few intensively fished areas that remained highly productive despite constant fishing activity. Areas with low activity were found to be economically and environmentally inefficient.

An environmental efficiency index was developed to compare economic gain with environmental disturbance. When well-managed, trawl fisheries such as those in Alaska, the Isle of Man, and New Zealand were shown to have lower CO₂ emissions than most animal-based food systems, and almost comparable to some crop production. Efficiency could be further improved through gear innovation, more efficient vessels, and the removal of low-yield fishing areas.

Concerns were raised about shifting from trawling to static gear, as static gear can cause ghost fishing, entanglement, and unregulated seabed impacts, especially in sensitive habitats. Accurate habitat mapping was identified as essential for preventing damage, since fishermen often lack access to detailed information.

Gear modifications—such as scallop dredges with raised skids—were shown to reduce seabed contact and emissions by up to 50%. However, inflexible regulations were noted as barriers to adopting such innovations. Effort caps, stock rebuilding, and spatial zoning were recommended to reduce conflict and environmental impact.

Acoustic release systems developed at Heriot-Watt University were highlighted as a way to reduce entanglement by eliminating surface buoys. Greater incentives and more flexible, goal-oriented fisheries policies were urged to encourage sustainable practices.

Finally, Kaiser encouraged cooperation between different fishing sectors and nations as a model for balancing conservation with viable fisheries, as well as continued research and dialogue at the European level.

5.1 Q&A

Marc Eskelund raised a question regarding the carbon footprint comparison between trawl and passive gears. In experience with passive and static gears, advantages are often observed in terms of catch value rather than quantity. Has the comparison been evaluated using economic value per catch, rather than weight, since catch quality and price are often higher with passive gears?

Michel Kaiser responded that the focus has been placed on food production rather than monetary value. While social benefits from higher-value catches with static gears are recognized, these figures are expected to change as electrification is applied to smaller-scale fisheries. He raised concerns regarding replacement of trawling with land-based production, as emissions and biodiversity impacts may worsen.

Marc Eskelund reacted that non-trawl gears can yield higher value from smaller catches, which may influence the carbon cycle. He emphasized the importance of diversity in food production systems, and acknowledged potential consequences of shifting production methods without advocating for one approach over another.

Michel Kaiser responded that targeting only larger fish reduces overall biomass, whereas a wider size range supports greater food production. Discussions of carbon footprint can be measured by weight or value, but focusing on value emphasizes a smaller proportion of the stock. Both approaches are valid depending on objectives. Environmental costs per kilogram may be higher for static gear, yet small-scale livelihoods can be promoted, which is a political consideration rather than a biological resource sustainability issue.

Emiel Brouckaert, Rederscentrale, noted that much information appears to be based on hearsay rather than verified evidence. Gear penetration impacts have been analyzed, but recent gear developments have likely altered outcomes. It is clear that substantial work remains: data are lacking, and precision fishing impacts cannot yet be fully demonstrated. Questions remain as to whether sufficient funding, personnel, and resources are available to challenge NGO claims and provide accurate evidence of bottom-fishing impacts.

Michel Kaiser responded that the relationship between gear penetration and impact has been well established. This allows the benefits of innovations, such as raising sweeps or using semi-pelagic doors, to be evaluated by quantifying penetration. Field measurements or informed estimates can be used to determine environmental effects. Once quantified, the environmental benefits of gear modifications can be demonstrated. The next step is to implement these innovations and measure their value in reducing impacts.

Dale Rodmell noted that the issue of industry ownership is recognized, but regulatory mechanism currently doesn't allow action beyond basic measures. Regarding scallop dredging, economic efficiency has been assessed using empirical evidence. Questions remain on whether this can be applied at the individual business level and whether similar analyses have been or will be conducted for other fisheries.

Michel Kaiser responded that an evaluation of the North Sea beam trawl fleet done by Simon Jennings found that 70% of its economic value was derived from 30% of the seabed. A similar pattern was observed for the scallop dredge fleet, though more restricted due to scallops' sedentary and habitat-specific nature. The analysis was limited by aggregated MMO data; access to original VMS tracks would allow more detailed, boat-by-boat assessment. Nonetheless, it was demonstrated that the areas producing most economic value are critical, while substantial inefficient "prospecting" fishing also occurs.

David Goldsborough highlighted that in past North Sea case studies with fishermen and NGOs, it was observed that coarse legislative scales obscure much detail in data. A way forward to address this issue was needed.

Michel Kaiser suggested that the way forward would be changing the legislation, and added that individual fishing tracks were previously protected, but even with fishermen's permission, data retrieval from the MMO was delayed and often incorrect, breaching GDPR. Greater transparency for scientific evaluation is now seen as in the fishermen's interest. Lack of public access to data has contributed to MPAs being proposed without nuance, which works against the fishing industry.

Emiel Brouckeart noted that a project in Belgium is currently being developed using Vistools to make all data fully open. Interested parties were invited to get involved.

Michel Kaiser mentioned a project proposal to the European Space Agency to equip trawl gear with environmental sensors, recording when gear enters and exits the water. Unique environmental data could then be stored via blockchain, enabling seafood provenance tracking. Benefits for fishermen include environmental insights and demonstration of best-practice fishing credentials. Optimism and proactive problem-solving were advocated in addressing environmental NGO concerns.

Michael Andersen noted that investigation of production boundaries was considered necessary, while still recognizing that some inefficiency is an inherent part of the fishery. The figures were suggested as valuable for evaluating current practices.

6 Trade-offs in bottom trawling sector [[David Goldsborough, Chair of ICES WGBESEO](#)]

David Goldsborough thanked for the invitation, placing the focus of the talk on trade-offs in bottom fisheries, particularly in the North Sea. Trade-offs, both conscious and unconscious, were described as key to decision-making and resource allocation at individual, organizational, and societal levels. Good governance principles—accountability, transparency, participation, and rule of law—are often overlooked in fisheries management.

The ICES Working Group on Balancing Economic, Social, and Environmental Objectives (WGBESEO) supports integrated assessments balancing economic, social, ecological, and institutional objectives. Tools for trade-off analysis were developed to assist decision-makers, although their use depends on willingness to engage in transparent and participatory processes. A case study on herring spawning grounds illustrated that data sharing between

stakeholders—fisheries, extraction industries, and NGOs—led to improved advice and understanding of ecological, economic, and social trade-offs.

The group's objectives were as follows: (1) to develop a framework for standardizing identification of objectives in ICES expert groups and (2) to create best-practice guidelines for transparent, multidisciplinary trade-off analyses. Historical ICES advice is being reviewed to identify trade-offs already embedded in decision-making. Exercises with stakeholders, especially in the North Sea, were highlighted as effective in generating shared knowledge, building trust, and supporting informed decisions. Challenges such as data sharing, facilitation, and funding were acknowledged, with success dependent on collaboration and transparency.

Goldsborough was interested in stakeholder views for further development of trade-off methodologies to improve understanding of fisheries management outcomes.

6.1 Q&A

Michael Andersen acknowledged that bottom trawling has impacts. The focus should be placed on improving practices, fostering cooperation, and enabling sensible trade-offs as the path to maintaining a license to operate. The current approach was described as overly simplistic, treating trawling as wholly negative, whereas nuanced discussion and consideration of context were emphasized as a significant step forward.

Dale Rodmell noted that in the current regulatory environment, particularly regarding the Marine Strategy, seabed integrity targets appear largely unattainable without significant reductions in trawling. Trade-offs between these targets and marine food production objectives have been little addressed. Some trade-off analyses were conducted in ICES before target adoption, but comprehensive balancing of ecosystem impact versus food production has not been documented.

Marc Eskelund noted that trade-offs in trawl fisheries are viewed on a scale rather than as binary choices. Environmental impact is weighed against ecosystem integrity and productivity. In highly productive areas, larger impacts may be tolerated, but conflicts arise where ecosystems are under stress. Different gear types cause varying impacts, and decision-makers often disagree on acceptable levels. Science and transparency are needed to clarify real consequences, including social and economic effects. In some low-productivity areas, such as parts of the Danish Inner Waters in the Baltic Sea, high bottom impact persists, highlighting the tension between maintaining fisheries and protecting ecosystems.

Alfred Fisker Hansen responded that much of this debate is driven by perception rather than precise science. Some areas, such as parts of the Kattegat, remain highly productive despite trawling. The common goal should be a healthy environment, after which desired productivity levels can be discussed and compromises reached.

Michel Kaiser noted that while the ICES working group is valuable, focusing only on European waters risks overlooking far-field effects. If fish production is reduced in Europe, demand may

be displaced to countries like Vietnam, where biodiversity may be degraded to meet European market needs. Such displacement effects should be included in trade-off analyses.

Marc Eskelund noted that a nephrops-dominated ecosystem is not considered fully healthy. While productivity remains, historical data show higher fish stocks and greater biodiversity 40–50 years ago, indicating a healthier ecosystem overall.

Alfred Fisker Hansen noted that it is not only nephrops that are in good condition; for example, flatfish in the Kattegat and western areas are also doing well. However, discussions often focus on Nephrops abundance, while other contributing factors are overlooked.

Michel Kaiser called for clarity between food production site and a pristine, healthy ecosystem. For example, wheat fields are low-diversity monocultures made artificially productive with fertilizers. The discussion should focus on food production in the natural environment, while implementing measures to reduce environmental impact and restore ecosystem components.

7 Closing remarks by NSAC Chair [*Kenn Skau Fischer, NSAC ExCom Chair*]

Kenn Skau Fischer appreciated the day's discussion, with contributions from science, NGOs, and fisheries, though regulatory representation was limited. He highlighted key points, including that bottom trawling remains essential for wild-caught seafood supply, but restrictions are necessary for environmental protection. Fisheries must accept reduced seabed contact as part of the license to operate. Trade-offs between food production, environmental integrity, and socio-economic sustainability need clearer evaluation, particularly in the North Sea, Kattegat, and Skagerrak. Better understanding is needed on why productive fishing grounds remain viable year after year despite repeated trawling. Spatial planning should balance conservation areas with zones for fishing. Overall, environmentally sustainable fisheries can be improved without closing the sector, and support was expressed for dedicated North Sea project on bottom trawling as part of Horizon programme.

8 Meeting participants

First name	Last name	Organisation
Albrecht	Wolfgang	Fischereischutzverband Schleswig-Holstein
Alexandra	Philippe	EBCD
Alessandro	Astroza	Norges Fiskarlag
Alfred Fisker	Hansen	THF
Christopher	Frånberg	Marine Stewardship Council
Claus	Pedersen	DFPO
Dale	Rodmell	Eastern England Fish Producers

		Organisation
Daniel	Voces de Onaindi	Europeche
David	Goldsborough	ICES
Emelie	Lundqvist	Swedish Society for Nature Conservation
Emiel	Brouckaert	Rederscentrale
Ewa	Milewska	Baltic Sea Advisory Council
Fredrik	Lidnberg	SFPO
Geert	Meun	VisNed
Helder	Wouters	Flemish Department of Agriculture and Fishery
Ilaria	Bellomo	NWWAC
Ivan	Lopez	Europeche
Kalle	Michielsen	Ministry of Agriculture, Fisheries, Food Security and Nature, The Netherlands
Kateryna	Urbanovych	NSAC
Kenn	Skau Fischer	DFPO
Kenny	Coull	SWFPA
Kevin	Haase	Ministerium für Landwirtschaft, ländliche Räume, Europa und Verbraucherschutz Schleswig-Holstein
Kim	Stobberup	Marine Stewardship Council
Malin	Wilhelmsson	SWAM
Marc	Eskelund	FSK-PO
Margot	ANGIBAUD	Europeche
Mark	Dickey-Collas	Dickey-Collas Marine
Markus	Lundgren	European Anglers Alliance
Mathias	Ivarsson	SFPO
Michael	Andersen	DFPO
Michael	Park	SWFPA
Michel	Kaiser	The Lyell Centre, Heriot-Watt University
Pauline	Stephan	CNPMEM
Peter	Breckling	Deutscher Fischerei-Verband
Sofie	Smedegaard Mathiesen	DFPO
Solene	Prevalet	From NORD
Svend-Erik	Andersen	DFPO
Tamara	Talevska	NSAC
Thor Gunnar	Martinsen	Norges Fiskarlag
Pim Boute	Boute	independent