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Date: 7 October 2025
PelAC reference: 2425PAC04
Subject: PelAC recommendation on the Preparations of the benchmark on Northeast Atlantic Mackerel – March 2025

Dear Ms. Charlina Vitcheva,

The Pelagic Advisory Council (PelAC) is pleased to submit in annex the detailed report of the PelAC Focus Group meeting on Northeast Atlantic Mackerel, which took place on September 12, 2024. This report summarizes the discussions on preparing for the ICES data call scheduled for the end of 2024, in the context of the benchmark for this stock, which is planned for March 2025.

In this context, PelAC would like to emphasize the importance of ensuring high-quality ICES advice on mackerel and the need to further investigate stock assessment. There are a number of uncertainties and biases in the input data for the assessment model (catches, recruitment indices, egg survey, trawl survey, tagging). The role of the benchmark will be to evaluate how these data and uncertainties will be addressed in the SAM model, including configuration, data input filtering, age-reading errors, and data weighting.

The PelAC regrets that this work will only be addressed during the benchmark. A key priority for PelAC is to tackle persistent gaps, particularly in the geographic coverage of data and stock distribution. Significant uncertainties remain, especially concerning various surveys (egg, acoustic, tagging, etc.). Given the fluctuating presence and accessibility of mackerel, improving geographic coverage in scientific surveys is essential for the future. Additionally, securing adequate resources to fund these surveys is critical, considering the nature of the existing data.

It is also important to consider alternative data sources, such as studies from industrial programs and research conducted by external experts. In this regard, the PelAC will take an active role by inviting scientists to present their findings. The PelAC believes that involving stakeholders, particularly fishers, in data collection and project design can significantly enhance the quality of stock assessments. We recommend reviewing workshops and informal meetings with ICES to foster greater collaboration.

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The PelAC has already initiated efforts in this direction by developing a fishers' survey model, which was implemented during the ICES WKAFPA workshop in October 2023. This data collection and analysis should be conducted annually, with the results treated as valuable stakeholder insights used to “cross-check” ICES advice. The PelAC will continue working on establishing a mechanism to "trigger" additional ICES reviews when the advice diverges significantly from stakeholder perceptions.

The PelAC also believes that climate change and ecosystem changes affecting mackerel and fishing patterns should be further studies to improve the initial data used by the models. We ask the Commission to raise this issue for pelagic stocks.

Furthermore, recognizing that the WKEVALMAC workshop concluded that mackerel is a single stock with no separate spawning components, the PelAC recommends that, in the near future, ICES be invited to propose and evaluate additional management measures that could have a positive impact on stock conservation. The PelAC is committed to proposing these potential management measures.

Finally, developing a management strategy evaluation (MSE) for this stock should be a priority. Research on MSE is important, particularly regarding recruitment factors, and we welcome work that includes interactions between stocks or broader ecosystem dynamics.

We remain at your disposal for any questions and thank you in advance for your attention to this matter. We look forward to your response.

Yours sincerely,

Esben Sverdrup Jensen
Chairman Pelagic Advisory Council

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Annex 1 - MEETING REPORT

Focus Group on Northeast Atlantic Mackerel

Date: 12 September 2024

Time: 13:30 – 16:30 CET

Location: Online - Zoom (with simultaneous interpretation EN-SP-FR)

Chair: Jérôme Jourdain

1. Welcome and adoption of the agenda

The chair welcomed participants to the meeting of the Northeast Atlantic Mackerel FG. He recalled that context around the creation of the focus group. This is the first meeting of the focus group as the group was agreed upon at the July Executive Committee meeting. This group has been set up in order to provide feedback from the PelAC on the incoming Northeast Atlantic Mackerel benchmark and ICES data call. In the long term, this focus group will also provide input on conservation measures for mackerel in different sea basins as well as discuss potential management rules and long-term management strategies with considerations of climate change and ecosystem changes.

Participants had been provided with a copy of the agenda in advance of the meeting. It was shared on-screen, and the Chair highlighted the fact that the agenda is divided into three parts: the presentation of the data needed for the benchmark of the Northeast Atlantic Mackerel, a second presentation on how new data could be incorporated in the advice and the discussion of the way forward for PelAC work on Northeast Atlantic mackerel. No AOB had been received prior to the meeting.

He then invited comments or questions from the floor. There were none, so the agenda was adopted without amendment.

2. What is needed for the benchmark? (Thomas Brunel – Stock Assessor)

Thomas Brunel from Wageningen University & Research took the floor to present on Northeast Atlantic Mackerel, current assessment input data and plans for the 2025 benchmark. Brunel's presentation is divided into two parts: fisheries related data and biological data. For both parts, he gave an overview of current input data and plans for the 2025 benchmark.

He started by presenting the which fisheries data are needed to perform the assessment. The first set are catch statistics coming from the scientific institutes of all 22 countries involved in the NEA mackerel fishery. Each country sends landing numbers, mean length and weight at age per ICES subdivision per quarter. Discards are also provided by part of the countries that have observer programs and that are not subject to the discard ban. Brunel provided some graphs showing that intensity of mackerel sampling was constant over the years with 80% of the catch being sampled. The number of fish aged per year varies, the aging is complemented by fish measurement that are relatively high.

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He presented the catch at age matrix that is used in the stock assessment to fit the results of the model. The model computes an estimate of the catches using the abundance at age estimate in the model as well as the fishing mortality at age estimated in the model. Then the model estimate of the catch at age is compared to the observed catch at age matrix. The model is then fitted to ensure it represents reality. The mean weight at age is used once the model is fitted to compute the modelled catches in tonnes.

Thomas Brunel described the objective of the 2025 benchmark: Conduct a review of the catch data time series and ensure consistency in reporting and explore the use of industry self-sampling data as a complement to market sampling data from scientific institutes.

Thomas Brunel concluded on the first part of his presentation and went on to discuss biological input data. The first data needed is the mean weight and proportion of fish mature in the spawning stock, it is calculated every year based on market sampling and sampling data. An issue for this data is that the sampling is restricted to spawning time, which is limited to a couple of month per year. This can lead to very low number of fish that can be used to compute this estimate.

The weight in the stock is computed based on the former 3 spawning component and is then averaged to get the estimate at stock level. It is used to compute the Stock Spawning Biomass: The abundance estimated by the model is multiplied by the weight of spawning fish and the proportion of fish that are mature. Any uncertainty in these data will lead to uncertainty on the SSB estimated by the model. However, a survey is carried out to provide an SSB index that is used to fit the model.

A second biological parameter needed is the natural mortality assumption (M). It is estimated to be 0.15 at all ages and for all the years. This parameter is based on old studies carried out using tagging data. This parameter is a central parameter as it includes all survival processes in the model. Any mis-specification of M will affect model estimates of abundance and fishing mortality at age.

Thomas Brunel carried on his presentation by providing input on the work of the Benchmark on these two parameters. For Stock weights and maturity, he underlined the importance of revising the methods to compute the biological input vectors in the light of the outcome of WKEVALMAC. The benchmark will also reconsider the sampling and the data as some samples are considered as too restrictive. Finally, the benchmark group will look into the need to keep computing mean weight for all 3 stock component as no biological assumption supports it.

Regarding natural mortality, the plan for the benchmark is to test alternative assumptions. Brunel underlined that having the same mortality for all ages is meaningless from a biological point of view. Younger fish are more likely to be eaten translating into a higher mortality for younger fish. The benchmark will look into including an empirical on natural mortality based on historical data, as this has been increasingly done in mini benchmark in ICES.

The third part of Brunel's presentation was dedicated to presenting the scientific surveys, mackerel is covered by a lot of surveys, however, only a few surveys provide a synoptic coverage. The first one Brunel focused on was the international egg survey. It has been carried out every 3 years from 1977 until today. The eggs are surveyed using a plankton torpedo, the eggs are then counted. 6 surveys are carried out over the year in 6 different areas depending on the spawning season. Based on the density of egg per trawl station, the scientist compute a total annual egg production. Moreover, individuals are also sampled to estimate the potential fecundity of mackerel, by counting the number of eggs

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per sampled individual. Finally by dividing the total annual egg production by the estimated fecundity, a SSB index is computed. This index is then used as an observation to fit the model. Model parameters, estimated stock size and estimated fishing mortality are influenced by this data.

This survey however foresees two main issues:

- The first one is the issue of the coverage of the spawning distribution: Brunel showed 2 maps, one of 1995 and the second of 2022. In the second map, the density of mackerel eggs has increased in the boundaries of the survey. It seems that the spawning area is expanding north. Moreover, for this survey to provide accurate data, it must take place during the spawning season. In the recent years, this has been more and more difficult to assess. Finally, the North Sea component is not covered by the survey but at different years making the aggregation of both index meaningless.
- The second issue relates to the assumption that mackerel is thought to be a determinate spawner, meaning that mackerel has a set number of eggs at the start of the spawning season and does not produce additional eggs during the season. However, increasing evidence seems to suggest that mackerel could be a partially indeterminate spawner. To address this, scientists are exploring the Daily Egg Production Method (DEPM).

The plan for the benchmark regarding the international egg survey sis to investigate new DEPM estimates, to include the results of the study on mackerel bio-energetics (protein and fat content) and its impact on fecundity. Finally, the objective is to develop a methodology to merge North Sea DEPM estimates with western and southern waters Annual Egg Production Method (AEPM) estimates. In the end, all modifications should be tested on the model.

The second survey of importance for mackerel is the summer swept area survey. Brunel presents the survey as an ecosystem survey that partly covers the summer distribution. It is carried out by 5 countries using a pelagic trawl. It is structured in two types of stratas: Permanent and dynamic. They may decide to stop covering areas if mackerel is absent.

It produces a swept area estimate of a number of mackerel per age class per square kilometre. Abundances at age 3-11 are calculated and used to fit the model. It is rather informative as cohorts can be followed over the years. Year effects are also visible, they are due to stratification of the water that heavily impacts the survey as a pelagic trawl is used. If no stratification is in place, then mackerel can be more dispersed.

The issues of the summer swept area survey are the partial coverage of the stock, the sensitivity of index calculation method and the year effect. Regarding coverage, mackerel in summer is also found west of Ireland. For the index calculation, it is very sensitive to the occurrence of large catches in trawl stations. Finally, the year effect linked to stratification needs to be included in the survey. The plan for the benchmark is to include the North Sea coverage in the index calculation. Now, data exists but not for the whole period and is mostly focussed on younger ages, age 2 could be used. Moreover, the objective is to include a statistical spatial-temporal model to compute abundance indices, better at handling extreme values.

The last survey used in the assessment is a compilation of bottom trawl surveys in western Europe. A model is used to compile all surveys and extract an abundance of recruitments. Density for the latest

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cohort, and the index provided is used as an observation to fit the model, it is compared to the recruitment in the model and the plan is to minimise the difference.

The plan for the benchmark is to consider to keep it or not. The information for age 0 and 1 and catch data is not very accurate and leads to a wrong perception of the state of the stock. A graph is shown to compare the variations between age 0 and age 2 and 3 where the model is fed by survey data. Greater variation exist for age 0 when compared to the other ages. Lack of data to fit the model for age 0 makes the index uncertain. The objective of the benchmark will be to assess if the removal of age 0 and 1 has an impact on the quality of the assessment. A graph showing the difference with and without ages 0 and 1 is shown in the presentation and no difference is seen.

Finally, Brunel presented the last input data: tagging data. There are 2 types of tags: steel tags that have been used before 2006 and RFID tags. The tagging is done on spawning grounds in May, and recapture data is obtained from several countries using scanners that are installed in factories. More data is obtained from RFID due to the fact that more factories are equipped with devices that scan them. The data is automatically entered into the data base and it is used in the assessment model. Brunel underlined that the way the tagging data was used in the Mackerel model was relatively unique. The SAM model was specifically modified to be able to incorporate mackerel tagging data. The model computes a number of tag that should be recaptured every year ad this number is compared the number of tags that are recaptured and inputted in the data base. The objective is to minimize the difference between recaptured tags and the model recaptured tags. To estimate the number of tags recaptured from a tagging year and from an age, the model uses the abundance at age from the model, the number of fish tagged from the cohort, the number of fish scanned in factories and a survival parameter.

Brunel then presents the plan for the benchmark regarding tagging data and the issues with the data. The issue with the tagging data is that the impact on the assessment is not well understood. The data is included directly in the model which is not the case of the other survey data. Each year more and more data are included thus increasing the relative importance of the tagging data when compared to the other types of survey data. Influence of tagging data increases due to the increase of number of data points.

Moreover, the suspicion of tag loss, meaning the longer the fish remains in the water between tagging and recapture, the longer there are chances of losing the tag leading to a lower concentration of tag in the population. The issue is that the model assessment will interpret that as a perception of the initial size of the population as greater. This issue was identified in the previous benchmark and it was decided to only use fish recaptured 1 or 2 year after the tagging. Some fish can be recaptured 6-7 years after the tagging but this data is discarded.

The plan is mainly to focus on the assessment, the goal is to understand how tagging data influences the assessment. The idea would be to find an arbitrary way to alter the weight and the influence of the tagging data compared to other data surveys. Understand what information is taken and what weighting to set for the tagging data. However, if the benchmark shows that the model has no control over the weight, it can be decided to convert the information to a similar type of data as the one issued from the survey of abundance at age, and using it in a similar manner to the other surveys and thus making it easier to understand the impact on the assessment. Finally, the benchmark would like to look into using data from younger fish, as years 3-4 have good information available to use in the

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benchmark. Brunel concluded his presentation and opened the floor to participants to answer questions.

Ashley Wilson expressed gratitude for the presentation by Thomas Brunel, acknowledging the historical context provided and referring to past efforts such as those under WGWide, which encompassed ICES data and surveys. He emphasized the importance of the upcoming benchmark, particularly as it lays a solid foundation for future long-term management strategies (LTMS). He suggested that prioritization might be necessary and encouraged considering what aspects would be better tested within an LTMS framework. Ashley noted the importance of improving scientific understanding and its contribution to management, specifically regarding the assumptions about natural mortality (M). He mentioned a Pew-funded study that explored the feasibility of using ecological reference points to stress-test and prioritize ecosystem-based fisheries management (EBFM), focusing on the assumption of M being set at 0.15.

Thomas Brunel acknowledged the complexity surrounding the issue of M. He pointed out that, although it is well-documented, there is currently no ecosystem model that can provide reliable estimates for the stock, particularly due to the wide distribution and migration patterns of species like mackerel. He mentioned that the magnitude of natural mortality at age (age-variable M) is more realistic but doesn't significantly impact the assessment or recruitment (R). This has been explored in previous benchmarks, but it won't be resolved entirely in this one.

Jerome Jourdain raised a question about industry concerns over fecundity and asked how the benchmark would address uncertainties regarding data sources such as surveys, considering the dynamic distribution and behaviour of species like mackerel. He questioned whether there was a risk of bias due to the migration of the species throughout the year, potentially leading to double-counting, and asked about the role of spatial dynamics in the assessment.

Thomas Brunel responded by saying that addressing uncertainty in the indexes used for the assessment is a priority. He emphasized the challenges in measuring uncertainty and pointed out that the Norwegian spring spawning season provides an opportunity to improve understanding. However, there are still gaps, such as in coverage of stock distribution, and uncertainties exist, especially in areas like egg surveys.

Claus Reedtz Sparrevohn asked why catch data prior to 2000 was not considered in the benchmark, despite available data from the 1970s.

Thomas Brunel explained that the decision to exclude data before 2000 was made due to concerns over unaccounted landings and registration issues, particularly in the 1980s and 1990s. While the exclusion of data from before 2000 is somewhat arbitrary, it was never revisited. He asked if there were suggestions for addressing this, to which Claus responded that he had no further questions, just curiosity.

Justyna Zajchowska thanked Mr. Brunel for the presentation and asked whether the benchmark could account for climate change-related trends, noting that surveys had shown such trends.

Thomas Brunel replied that he doesn't see the benchmark spending a lot of time on climate change. Stock distribution and recruitment is dynamic in time but the changes cannot be linked to Climate change. Moreover, assessing the impact of Climate change is a type of science. Stock assessment does not need to ling the change to a cause as long as the input data can be adapted. If an unknown

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event occurs and impacts the growth, the benchmark does not need to understand what happened, but they only need the data resulting of it.

However, he underlined that this was not the case for Long-Term Management Strategies (LTMS). For them, it is necessary to understand the past and assess if it can happen in the future. But for LTMS simulation for the future, important to know what happened in the past and does it need to be reproduced in the future. The benchmark is about improving the assessment but not about discussing the biology of climate related effects.

The Chair asked whether the data call had already been circulated or if it was still under discussion.

Thomas Brunel was unsure about the specifics but mentioned that these discussions are ongoing in WGWide and that no final decisions had been made on what and when data will be issued.

3. Identification of problems linked to evaluation (Claus Reedtz- Sparrevohn)

The floor was then given to **Claus Reedtz- Sparrevohn** to present on the identification of problems linked to the evaluation of mackerel. His presentation is set to focus on data issues: sources of uncertainty and bias identified & how to reduce uncertainties, new data (fecundity and bioenergy in mackerel egg production), and the industry survey conducted in the North Sea.

The presentation started with a slide on a scientific paper written by Teunis Jansen on the bioenergetics of egg production for mackerel. The document reconstructs the bioenergetics of the Northeast Atlantic mackerel and investigates how much of the bioenergetics go into producing eggs. This is done by comparing how much energy is available before spawning and after spawning.

To get these data, Teunis approached the mackerel factories to ask them for historical data of fat content and reconstructed the trends back from the 1980s. Initially there was only data from the Norwegians followed by a hole in the data, and afterwards he was able to include Danish, Scottish and Faroes data. He underlined that this was a good example on how to use industry data.

Claus Reedtz- Sparrevohn then provided background on AEPM and DEPM. The method is rather an simple way of estimating SSB through eggs: first by counting the number of eggs, second by estimating the number of eggs per female and then by dividing the total number of eggs by the number of eggs per female, they estimate how many fish are in the SSB.

The relative fecundity in the AEPM is based on the assumption that the number of eggs found in a mackerel that has not spawned is representative of its fecundity. It assumes that the mackerel has not recruited new eggs at a later stage. Good arguments exist against this assumption as repeated spawner eat during the spawning season and data show that mackerel eat during the spawning season. **Claus Reedtz- Sparrevohn** underlined that the use of DEPM is data-hungry in the sense that assumption on the fraction of mackerel spawning during sampling of eggs needs to be taken

To account for any changes in relative fecundity, he suggested looking at the observed percentage of lipid contents, reconstructed data is available on a month by month scale. The spawning cycle starts and fat content is at its highest and is at its lowest at the end. Yearly data is available and modelled using the month by month data and converting it into a first of October data. The graph shows a drop in lipid content from 2005 to 2020, the reason why remains unknown, but this should translate into a decrease in fecundity, less fat content so less eggs. However, this is not reflected in the graph on relative fecundity per year. It is a straight line, relatively constant over the years.

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Study calculated the relative fecundity based on lipid, protein and compared it to the one observed by ICES in the egg survey. When considering the fecundity computed using lipids, we can see a decrease in the recent year that has not been observed by ICES.

Claus Reedtz- Sparrevohn then presented the swept area survey. He underlined that it had been conducted for 7 years in the North Sea, using similar methods as the swept area survey carried out in the Norwegian sea. The same ICES working group, same trawl and the same set up are also being used. Reedtz- Sparrevohn stressed that a commercial vessel was carrying out the survey. He pointed out that the coverage in the North Sea was limited due to the fact that the south of the North Sea was too shallow to carry it out. However, this area is of importance as it is expected to see small mackerel. He underlined that mackerel catches in the North sea were relatively small due to the fact that mackerel caught were from younger age classes (1 and 2). However these data points would prove to be useful, they expect to be able to calibrate it with the IBTS survey. The objective would be to use this data as a recruitment index in the model.

Following the presentation of the swept area survey, Reedtz- Sparrevohn underlined his views regarding egg surveys. According to him, the resources invested in the surveys could be invested with better return on other surveys. He then presented the work of Paul Fernandes on using acoustic surveys to estimate the abundance and distribution of mackerel in the autumn.

The basis of this survey would be to utilise the fact that mackerel aggregates in the North Sea, in the Shetland Isles in the autumn. Using commercial vessels equipped with EK80s that can be calibrated and used to measure the biomass of mackerel. Work has already been invested into understanding how tilted mackerel is in the water and how reflected by echo sound beam it is. Data from 2014 exist and could be used as a basis for the time series.

Moreover, he informed the focus group that following a discussion with Norweggian and British industry stakeholders they have shown interest in such a survey. Reedtz- Sparrevohn suggested that the PelAC look into supporting Paul Fernandes with a grant student to continue his work on this matter.

The Chair thanked Claus Reedtz- Sparrevohn for his presentation and inquired whether acoustic studies had been included in the benchmark process yet and whether genetics would be incorporated. He suggested that PelAC might consider supporting genetic research. Anders Nielsen was mentioned as he carried out scientific research on genetic identification of mackerel stocks.

Claus Reedtz- Sparrevohn underlined that it was not realistic to include acoustic and genetic data as it might currently be premature due to insufficient data quality, however, it will be important to consider this for the future. He emphasized that, in hindsight, it would have been better to start working on this topic 2-3 years ago. From the industry's point of view, he recommended considering support for acoustic surveys. He underlined that the acoustic survey would not provide distribution data, but would be able to provide an age-class segregated index of stock size. Regarding Anders Nielsen's work on estimating the stock size using genetic profiling through a close-kin approach by detecting siblings or parent-offspring pairs. Reedtz-Sparrevohn reported that Nielsen had said it could be used to estimate the stock size if a big enough investment was made. The method has been proved to work on smaller stock size. He suggested contacting Anders Nielsen for more information.

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Gonçalo Carvalho was given the floor and asked what the timeline would be for adding weight to an acoustic survey and when it would be possible to establish a sufficient time series for it to be included in the stock assessments. He also asked which ICES group should be approached for further discussions on acoustic surveys.

Thomas Brunel explained that acoustic data typically needs 5-6 years, ideally 10 years, of consistent collection before being incorporated into a stock assessment model. This duration is necessary to ensure model stability, as new data points may otherwise lead to reinterpreting the survey results.

Claus Reedtz- Sparrevohn added that acoustic data had been included in previous efforts but was later excluded due to incomplete analysis and lack of manpower. He suggested a similar approach could be taken this time, though the data needs thorough analysis.

Gonçalo Carvalho asked which ICES working group, such as WGWIDE or another. He wished to know who should be targeted if the PelAC was to advise on acoustic surveys and who the key stakeholders would be for driving this initiative forward.

Claus Reedtz- Sparrevohn admitted he was unsure but emphasized that securing funding was crucial for such a project.

Thomas Brunel reiterated that any initiative around acoustic surveys would need to be scrutinized by experts, as mackerel are challenging to track acoustically due to the absence of a swim bladder. He cautioned that without expert review, there is a risk of inaccurate data, even though advances in technology have improved the science. Still, thorough validation is essential before moving forward with any major acoustic survey initiatives.

Niels Hintzen added that the WGIPS Working Group on International Pelagic Surveys should be involved, as they are responsible for planning surveys under the Data Collection Framework (DCF). Alternatively, he suggested that if the PelAC and the industry were considering supporting an acoustic survey, there could be scope for coordinating an industry-led survey. He cited examples such as Peruvian industry running surveys with multiple vessels for anchovy and sardine. Hintzen proposed that if industry pushes for it, they could start an initiative that might eventually be picked up by DCF.

Gonçalo Carvalho asked whether there were any additional sources of data or approaches that could help address these gaps, particularly through the WKEVALMAC initiative, but there were no further insights from the group.

Thomas Brunel reflected on a meeting in Bergen in 2013 that looked at integrating various data sources to create a composite survey index for the entire mackerel stock. He explained that while this was feasible within specific areas, it was impossible to merge all the data across different regions due to the inconsistencies in how the data was collected. This challenge was one of the arguments supporting the use of egg surveys, which have consistent time series and provide balanced insight into the stock's state and evolution.

4. The way forward PelAC (discussion & decision)

Following the coffee break, **the Chair** summarized action plan for the benchmark. Taking into account that a certain number of PelAC's issues seem to be taken into account in the action plan for the next benchmark, as presented by Thomas Brunel, the Chair suggested that the PelAC considers the following points to define its action plan:

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- Consideration of self-sampling for catches by age, and guarantee for a high level of quality
- Revision of natural mortality (M);
- Production of DEMPs / consideration of results in bio-energy (fecundity);
- Development of a method to combine DEMP and AEPM North Sea & NWW/SWW;
- Extend RFID data beyond the 5-11 age group; ...

Second, taking account of uncertainties/bias in the model input data (catches, recruitment indices, egg surveys, trawl surveys and RFID tagging), the chair suggests that we ask the benchmark group how they are treated in the SAM model. He recommends that the model undergo a performance evaluation.

Furthermore, he suggested the inclusion of more research into the evaluation. He suggested that to reduce uncertainties and bias, data quality should be ensured throughout the entire process: from data collection at sea to final assessment. Moreover, better understanding recruitment and fecundity should be set as work priorities.

Finally, the Chair presented the work that could be undertaken by the PelAC and the fishing industry. They could contact Paul Fernandez, WGIPS and DCF regional coordination groups to implement an acoustic survey based on industry driven swept area survey conducted in the North Sea. Second, the members could work with ICES to develop a mechanism for integrating industry observations/commercial data. Third, more work could be invested into including Close-Kin-Mark-Recapture-Analysis method into the benchmark. Finally, considering that the model does not include the impacts of climate change, work to better understand how mackerel is impacted.

The chair concluded by underlining that the views of the members on what the PelAC could do and most of the initial feedback was already part of Thomas's presentation. The chair then opened the floor to question and comments by the floor.

Gonçalo Carvalho took the floor to thank the chair for his action plan. He suggested that the PelAC take contact with the ICES body in charge for putting together the data call. The objective being to present the conclusions of the focus group.

Niels Hintzen took the floor and questioned Carvalho on if he thought there were data that ICES was unaware of and that he would like to bring to their attention to guarantee it is part of the data call. He underlined that the data call, its guidelines and procedure were very formal and that they were under no obligation to include data not under the DCF. He stressed that if the focus group wanted specific data to be included, it had to bring it to the attention of ICES. Moreover, this could be done by drafting a working document to the benchmark and by contacting national scientists taking part in the benchmark to present it to them.

The Chair asked Hintzen if he had any specific examples in mind and whether he thought it would be worthwhile to pursue.

Niels Hintzen replied that no relevant data was currently available. Although there have been attempts from fishers to assess stock trends, these efforts have not materialized into usable data or meaningful time series trends. There is no immediate data that could be used.

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Tim Heddema was then given the floor, he expressed gratitude for the contributions made during the meeting and highlighted the importance of prioritizing tasks moving forward. He emphasized that for him, geographic coverage is one of the most critical items to address. He suggested that a task force should be organized to identify what is most essential.

Justyna Zajchowska took the floor and acknowledged the Chair and recognized that the meeting was focused on benchmarking. However, she pointed out that broader aspects, such as climate change and its impact on stocks and ecosystems, should also be considered as they directly impact natural mortality of fish. These aspects are directly tied to management strategies. Zajchowska proposed that the scope of discussion should extend beyond the benchmark and encompass broader ecosystem considerations, which could influence PelAC's future advisory capacity. She also proposed to set MSE as a priority for the Working Group.

Ashley Wilson was offered to speak, he addressed alternative data sources, particularly those collected under the Data Collection Framework (DCF) and industry programs. He mentioned that other studies could provide additional insights, and it is crucial to refer to expert-driven science in these discussions. Wilson proposed inviting experts to present their research to better inform decisions and raise awareness beyond pure data analysis.

The Chair took the floor and he discussed the importance of benchmarking, highlighting past contributions to WG2. He proposed working inside the PelAC to support and elevate the importance of these studies. The potential of MSE and how it might help improve stock management decisions are part of the focus group terms of reference.

Gonçalo Carvalho supported the idea of integrating studies and alternative data. He suggested that we could regroup such data in document. He pointed out the urgency of pushing the MSE forward and identified its importance in shaping the PelAC advice on fishing opportunities for 2025. The MSE could help address critical elements for stock management, particularly through modelling changes.

Jose Beltran discussed climate change and the timing of studies, noting that it is important to be vigilant about when these studies are conducted. He emphasized that fishing fleets should keep ICES informed based on the situation of the stock and how climate factors are influencing stock behavior in order to monitor changes in the stock over time.

Claus Reedtz Sparrevohn responded to Beltran by discussing the value of information collected from fishers and suggested that this could be useful for planning surveys. Previous efforts to gather data on spawning times through interviews with fishers in Scotland and Ireland were unsuccessful due to poor data quality. However, Sparrevohn proposed that hiring a student or implementing a similar project might help collect better quality data. Additionally, he recalled an informal workshop trial with ICES, where stakeholders were invited to participate, which could be revisited.

The Chair concluded the focus group by suggesting a prioritisation by the PelAC on the most important items. He suggested that the PelAC identify missing data or data to bring forward. The need to find a way to include fishers perception and to forward interesting scientific studies was also stressed.

Gonçalo Carvalho requested the floor to request clarification on the timeline of work. The chair suggested that a first draft of an advice be circulated prior to the October WGII meeting to publish it in time for the data call

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The agenda being exhausted and no AOB having been brought forward, the chair closed the meeting.

Key Proposals and Actions

1. **Prioritization of Geographic Coverage**
   Tim Heddema stressed that prioritizing tasks, especially geographic coverage, should be one of the primary goals moving forward. He recommended creating a task force to address this.
2. **MSE as a Priority**
   Justyna Zajchowska and Gonçalo Carvalho agreed that the MSE should be considered a priority, and it should be integrated into future stock management advice. The urgency of pushing forward the MSE was stressed.
3. **Climate Change and Ecosystem Management**
   Climate change's impact on stock trends and ecosystem management should be a more central aspect of stock evaluations, as highlighted by several participants, including Jose Beltran Justyna Zajchowska. The PelAC must continue to incorporate climate-related factors into its stock advice.
4. **Improving Data Quality and Sources**
   Ashley Wilson, Claus Reedtz Sparrevohn, and Jerome Jourdain discussed alternative data sources, such as studies from industry programs and research conducted by external experts. Ashley Wilson proposed inviting experts to present their work to ensure PelAC has access to the best available science.
5. **Stakeholder Engagement and Collaboration**
   Claus Reedtz Sparrevohn mentioned that involving stakeholders, such as fishers, in data collection and project design would help improve the quality of stock assessments. Workshops and informal meetings with ICES could be revisited to promote greater collaboration.

4. *Next Steps*

- **MSE Development**: Initiate work on the MSE process and integrate its results into future stock management decisions. Set this as a priority for the Working Group.
- **Data Collection Improvement**: Encourage the development of new data collection methods, including collaboration with industry experts and scientific researchers.
- **Climate Change Consideration**: Ensure that climate change and ecosystem management are considered in future stock assessments.
- **Finalizing Advice**: PelAC will finalize its stock advice by the beginning of October and submit it to the Commission and ICES. The timeline for sending advice will be clarified by the Chair during the upcoming WG2 meeting.

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