



## ▶ Pelagic AC

Western horse mackerel Focus  
Group  
27 June 2017  
14:00 – 18:00 hrs  
WTC Schiphol Airport

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### Participants

- |    |                             |  |
|----|-----------------------------|--|
| 1  | Sean O'Donoghue, chairman   | Killybegs Fishermen's Organisation       |
| 2  | Edward Farrell (by WebEx)   | University College Dublin                |
| 3  | Goncalo Carvalho (by Webex) | Sciaena/Pew Charitable Trusts            |
| 4  | Ian Gatt                    | Scottish Pelagic Fishermen's Association |
| 5  | Martin Pastoors             | Pelagic Freezer-trawler Association      |
| 6  | Micheal Cavanagh            | Killybegs Fishermen's Organisation       |
| 7  | Miren Garmendia (by WebEx)  | OPEGUI                                   |
| 8  | Patrick Murphy              | Irish South and West PO                  |
| 9  | Piera Carpi                 | CEFAS                                    |
| 10 | Romain Soisson              | From Nord                                |
| 11 | Sonia Sanchez (by WebEx)    | AZTI                                     |
| 12 | Steven Mackinson            | Scottish Pelagic Fishermen's Association |
| 13 | Verena Ohms                 | Pelagic AC                               |

### 1. Opening and objectives of the meeting

The chairman opened the meeting at 14:15 hrs and welcomed the participants. After a short round of introductions, he explained that the purpose of the meeting was to start developing a management strategy for Western horse mackerel again. This endeavor was parked in December 2015 in light of the problems with the assessment. Now that there has been a benchmark it was time to work on a new long-term strategy again. Two of the big issues that have to be looked at again are stock ID and protecting incoming year classes.

### 2. Recapture of the benchmark results

Piera Carpi is the stock assessor of Western horse mackerel and provided a recap of the benchmark results. She explained that the main outcome of the benchmark was moving from a VPA type model to a more complex one, called stock synthesis assessment model, developed by NOAA. The idea was to overcome some of the problems with the SAD model which only allowed the egg survey to be included. That was a problem, because the egg survey caused retrospective issues every time and changed the perception of the stock. For the last years the stock assessment assumed constant



selectivity although people know that selectivity has been changing. She also pointed out that there is a different perspective of the southern fleet compared to others. The southern fleet catches mostly small horse mackerel and the intention had been to develop a 2-fleet model to take this into account. However, in the end the 2-fleet model was not ideal, because people were struggling with the Spanish catches. However, the benchmark managed to include other surveys: a recruitment index from the IBTS and an acoustic survey from the Spanish in the Bay of Biscay. It was also tried to have some time-varying parameters which did not really work, because the assessment did not have enough information to calculate the parameters. There was some ageing error for past years due to some bias of the age readers who followed the big cohorts and tended to aggregate data in the big cohort. This ageing error has now been removed and the assessment appears rather stable now. However, the stock perception changed in the sense that it re-scaled down for the recent period and also for previous periods. Egg survey data prior to 1992 have been removed, because the survey experts do not consider them reliable anymore. While the new model run changed the perception of the stock, the overall perception remains more or less the same with the new model. The new model seems to be more stable than the previous one, but can probably be improved further.

The chairman thanked Piera Carpi for the summary and said that he had a lot of questions about the benchmark report which he wanted to explore. He understood from Andrew Campbell's presentation at the PELAC April meeting that only few people understand the stock synthesis assessment model. He wanted to know whether this will cause problems down the road.

Piera Carpi admitted that the model is very complex and difficult to understand. However, one of the developers attended the benchmark and made sure that the assumptions were followed and that the model was set up properly. She said that it would not have been possible to stick with the old model anyway which was not worth improving. The new model is more sophisticated, but the downside is that it is very complex. Nevertheless, it was possible to go from a very simple model configuration to a more complex one that includes much more information. This was handy, because the new data coming in are very diverse. It was not desirable to change stock perception every year, and hence a stable assessment model was necessary. The stock synthesis assessment model was able to respond to these issues.

Steven Mackinson wanted to know whether the stock synthesis assessment model could be regarded more as a framework than a model given that it can include all kind of new data.

Piera Carpi said that it is a kind of dynamic model, because it can model some key parameters.

Steven Mackinson concluded that if some parameters were missing, they could be inferred from the model. At the same time the model could also be kept very simple.

Piera Carpi confirmed that this was the case and pointed out that the model has also been used for data poor stocks with only landings data.

The chairman considered it a very positive development that data from the IBTS survey are now included for a recruitment index. However, it seemed to him that the signals from the IBTS survey did not affect any other data.

Piera Carpi explained that the 2008 recruitment was not as significant as the 2001 recruitment, however there is a positive signal that was also picked up by the previous model. Nevertheless, the IBTS survey is still a groundfish survey and people must be careful when assessing those data. The weight given to the IBTS data is lower than the weight given to the egg survey. In the end, expert judgement is also important.

The chairman recalled that stock ID was also discussed briefly in the benchmark report and the HOMSIR project was mentioned. He wanted to know whether the HOMSIR samples could be re-analyzed using newly developed genetic tools.



Piera Carpi said that that would be possible if the samples have been conserved.

The chairman also pointed out that the benchmark did not deal with natural mortality and that this issue would be addressed later. He was interested in the upward trend in fishing mortality and the different perception of the stock given by the new model.

Piera Carpi confirmed that fishing mortality is increasing, but that that also depends on the scaling down of the biomass. Including not only pure age data, but also length frequency distributions and age-length keys, could also have an effect on fishing mortality. If the model detects a lot of young and small specimen compared to the growth curve, then that affects perception as well. She explained that Gersom Costas went through the old data and put everything into inter catch. However, some data might have been reported differently and he also found some errors and adjusted them.

The chairman thought that there had been an issue with how samples from quarter 3 and 4 were assigned. He understood that Gersom Costas re-examined how samples had been assigned for a number of years and made the necessary revisions. He said that the results are in table 4.2.2 of the benchmark report.

Martin Pastoors said that it was important to consider what the new model means for the outlook on the stock. Comparing the previous assessment model with this year's assessment model shows that the new model incorporates a lot more data, but information from the PELGAS survey has not been used. He also looked at age-length data and said that the input data is in a quite complex format in the stock synthesis model. He did not see much of a pattern. There was a slight increase in the catch of small fish in 2013, but not in 2014. Looking at catch at age there is a very strong pattern in the data because of the strong year classes. It was easy to follow the 1982 year class as well as the 2001 year class. There was some increase in catch at age for younger ages, but nothing really exceptional. It was therefore not so easy to draw a conclusion. Martin Pastoors also explained that he could not find information from the Pelacus survey in the stock assessment group. He suspected that that information was available in the sardine assessment group, but he did not have access to that group. Looking at the biomass trend from the egg survey and the trend from the Pelacus survey showed that they are quite different. He also pointed out that the rescaling of reference points has resulted in the stock being below  $B_{lim}$  at the moment. This was due to the fact that the new  $B_{lim}$  is equal to the old  $B_{trigger}$ . However, SSB relative to MSY is not very different. Fishing mortality is above  $F_{msy}$ , partly because  $F_{msy}$  has changed a bit. In conclusion, the new stock synthesis model is smoother, but also more complex. The first two data points from the egg survey have been removed while a recruitment series from the IBTS has been included. The Pelacus survey has also been included, but gives a different signal compared to the egg survey. Trends in SSB are similar, but at different levels. Reference points have been re-estimated following a different rationale. SSB in 2015 is estimated to be below the new  $B_{lim}$ . SSB for 2016 is not yet available. Finally, fishing mortality is above the new  $F_{msy}$ .

The chairman wanted to know how the model deals with horse mackerel being an indeterminate spawner.

Piera Carpi said that one option is to have the model estimate fecundity parameters. However, the model simply gave a linear relationship, because there was not enough information available. Therefore, this issue could not really be dealt with. Fecundity is proportionate to weight, but the new model did not take into account that horse mackerel is an indeterminate spawner. The previous model used some values from the literature dating back to the 1980ies. She said that people had thought about asking the developer of the stock synthesis model whether old fecundity data could be included and whether that would help estimate fecundity.

The chairman requested further clarification about the issue and Piera Carpi explained that people used the number of eggs from the egg survey and converted those directly into SSB. The model did not take into account that horse mackerel is an indeterminate spawner and instead assumed that the egg

survey indicates SSB. She said that this was one of the issues the stock assessors would like to work on, but there was not enough time during the benchmark.

The chairman remembered that the reference points had been dealt with after the benchmark and he wanted to know whether they have been finalized.

Piera Carpi confirmed that that was the case and that they have also been included in the benchmark report. Hence, WGWIDE will use the new reference points.

Martin Pastoors added that there had been a big discussion on whether to assume spasmodic or stochastic recruitment. The old idea was that there is no stock-recruitment relationship and that therefore the lowest observed biomass should be used as trigger point.

Piera Carpi pointed out that in the new situation the lowest observed biomass value is used as  $B_{lim}$  and that  $B_{trigger}$  is calculated from there. This procedure corresponded to a new ICES protocol on how to calculate reference points.

Martin Pastoors said that the issue whether to treat recruitment as spasmodic or not remained unresolved and the chairman concluded that there was no stock-recruitment relationship.

### **3. Update on the genetics project and stock ID issues (Edward Farrell)**

The chairman invited Edward Farrell to provide an update on the genetics project and the stock ID issues.

Edward Farrell explained that not a lot work has been done since he provided the last update. The main focus has been on collecting a second year of samples across the distribution area. Samples have been collected in Portugal, the southern Bay of Biscay, the West of Scotland, the North Sea and also in Mauritania. The next step will be to decide how to get started on a project. DNA will have to be extracted and the samples have to be prepared for genotyping. Previous work done for the PFA will also have to be re-analyzed and more work was needed developing markers and considering some of the things learned from the herring project. He estimated that it would take about a month to sit down and sort out what exactly had to be done before the actual work could start. Regarding HOMSIR he tried to contact everyone involved in the project, but so far did not receive any responses. The project leader said that he would look for the samples, but Edward Farrell has not heard from him anymore.

Martin Pastoors offered to contact him again.

Edward Farrell was not sure if the samples still existed and if so where to look for them. However, it would be very useful to have the samples since they could reveal any temporal changes in stock structure. He also pointed out that genetics was only one part of HOMSIR. The project also looked at parasites and morphometrics. The results were quite limited though and the project took place a long time ago. Things have progressed a lot since then, especially regarding genetics. The results from HOMSIR were not very good, because of the low number of markers, so any conclusions are quite uncertain. The number of samples was good, however.

The chairman wanted to know what a new genetics project would cost.

Edward Farrell replied that he would first concentrate on the samples collected last years. So far almost 1000 samples have been collected and more are being collected this year. It might not be necessary to analyze them all, but just in case it was good to cover as many different areas as possible and to prioritize certain areas. Edward Farrell confirmed the suspicion that there is a stock ID issue with horse mackerel. Even though management seems to have set the divisions in stone they are very uncertain.



Martin Pastoors pointed out that there was no new information warranting a change. Until the analysis has been carried out there was no reason to change anything.

The chairman had expected that the benchmark would say that this issue needed to be addressed.

Piera Carpi said that it is being addressed, but that people were waiting for the samples to be analyzed.

Martin Pastoors had the hypothesis that the North Sea component is not so different from the Western component, but this had to be proved before anything can be changed.

Edward Farrell said that he needed to have a couple of years of samples before the sample set was valid and they also had to be more informative, like for herring. In the herring project he had access to the full herring genome which helped detect markers. Horse mackerel covers a much larger area and it is more likely to see differences and structure in that species, however, it took time to develop the markers. To do this as efficiently as possible someone would have to work on it fulltime for a year. Nevertheless, he could start extracting DNA and put some time aside to revisit the data generated for the PFA previously and to look at the markers again in more detail. He might also be able to identify markers that worked well and maybe find some new ones. In summary, he could prepare to do the full processing maybe next year.

The chairman said that if this was decided to be a key issue, then it had to be prioritized. Otherwise nothing will happen. He also mentioned a new data call under the DCF that might be used.

Martin Pastoors said that the work could be done relatively quickly if the industry collectively decided to provide the funds.

Edward Farrell pointed out that the deadline for the EU proposal under the DCF is the 7<sup>th</sup> of July and it was impossible to submit something on such a short notice.

Martin Pastoors said that some Dutch funds coming from Dutch scientific quota could be available for extracting and analyzing DNA samples.

The chairman wanted to know what it would cost to analyze the 1000 samples mentioned before.

Edward Farrell said that the DNA extraction would be outsourced and would cost about EUR 27 per sample excluding VAT. People could start with that. However, he also pointed out that some time will have to be spend on marker development. The initial investment will probably not be huge, but analyzing the whole set of samples will probably bear the same costs as the herring project, so approximately EUR 150.000.

The chairman decided to ask Gerard van Balsfoort to look into possibilities of funding the work through the NPWG. He wanted to make this a priority.

Edward Farrell explained that the ATLAS project is ongoing too and that project does a little bit on horse mackerel and marker development. It might be possible to use some of the project's work. However, the study is purely academic and has a different timeline and objectives. The project does not look at stock ID, but at population structure including the Mediterranean.

The chairman asked Edward Farrell to put together a cost overview before the 11<sup>th</sup> of July for both the sample analysis and the marker development, as well as a timeframe. He also asked Martin Pastoors to ask Gerard van Balsfoort to add this item to the next NPWG agenda. He hoped that there was still some money available from previous projects.

Martin Pastoors wanted to know whether it would be possible to influence ATLAS in a way that it would be beneficial for the stock ID project.

Edward Farrell said that ATLAS works on marker development and it might be possible to get some useful information from the project. He promised to talk to Jens Carlsson who is a member of one of



the work packages. However, he also pointed out that the project mainly focusses on deep sea species, but for some reason developed an interest in horse mackerel too.

The chairman concluded to look at the DCF call again next year.

#### **4. Update on PFA research project (Martin Pastoors)**

Martin Pastoors explained that the PFA did a research project which initially focused on North Sea horse mackerel, but turned out to apply to horse mackerel in general. To figure out stock ID genetic, chemical and vessel quality analyses were explored. The genetic analysis is still ongoing and there have been some sequencing problems. So far, the results are thus inconclusive. The chemical analysis has been completed, but the conclusion was that it cannot be used. The analysis of vessel quality data is also still ongoing, but Martin Pastoors expected that the results will not be very conclusive either. Consequently, the most promising avenue is the genetic analysis and people should focus on that.

Regarding stock indicators the project has been successful in generating new survey data and a French survey is now included in the assessment. Analysis of vessel catch rates is also still ongoing.

The genetic sampling has been quite extensive and will be repeated again in 2017. The material will be analyzed based on the herring methodology. CPUE data from (private) logbooks are also being explored. So far only digitized information from six vessels has been used. The information recorded was position, depth and catch by species. More work is needed on the analysis of commercial catch rates. The PFA is also considering hiring a post-doc for a three month period to carry out a geospatial analysis in relation to vessel catch rates.

The chairman said that the benchmark decided not to include vessel catch rates in the assessment and he wondered how they could be included eventually.

Martin Pastoors replied that the process will be similar to the work on stock structure. First, it had to be demonstrated that the new information is useful, maybe as some sort of biomass indicator.

The chairman said that he did not want to collect data which in the end will not be used. He was disappointed that the benchmark decided not to include all the data available. If the fishing industry was to provide data, it had to be ensured that the information would be used.

Micheal Cavanagh wanted to know whether discards have been included in the analysis.

Martin Pastoors explained that discards have not been included, because there were not many discards. The main discard issue was with mackerel. Regarding the development of new indicators he pointed out that the information had to be scientifically robust and there was a need to take into account technological creep. Benchmarks are the moment to include new information, but ICES is changing the benchmark system and the PFA is preparing for the next opportunity to bring in new information. Having new information can also be a reason to promote a new benchmark. Martin Pastoors was not sure how exactly ICES will change the benchmark process, but he was certain that a survey index will not be available for WGWIDE in August. However, he hoped that it would be included next year. He also said that information on mean length by area was available and could be analyzed. This in turn could say something about size composition.

#### **5. Natural mortality (Steven Mackinson)**

Steven Mackinson said that he had prepared some material on natural mortality (M), but it had not been included at the benchmark.

The chairman was aware that it was not dealt with at the benchmark, but considered M still a big issue.

Steven Mackinson who has previously worked on multispecies models, showed the presentation that he gave at the benchmark. Currently,  $M$  is fixed at 0.15 for all ages and all years since 1980. This means it is overdue to revisit  $M$ . The value is based on estimates of total mortality derived from tagging data combined with catch data. The first mackerel working group report where the value was given was 1983. The questions that should be addressed when revisiting  $M$  are:

- Should natural mortality be allowed to vary with age?
- What evidence do we have that can be used?
- What are the consequences for the assessment?

$M$  changes over time due to changes in abundance of predators, feeding conditions, disease etc. It is also much higher in smaller and younger fish as well as in very old fish approaching maximum age.

There are two alternative options worth considering for estimating  $M$ . It could be fixed over all ages, but change over time with  $M$  estimated from models or  $M$  could vary with age with:

- $M$  at age values estimated from models (fixed in time or varying over time)
- $M$  at age values borrowed from models, but scaled to fixed  $M=0.15$  over certain age range (fixed in time)
- the  $M$  at age pattern borrowed from surrogate species such as herring, and then scaled the pattern to fixed  $M=0.15$  for certain ages (fixed in time).

There are three models available in the North Sea to look at these options. SMS, Ewe and Le Mans. The difference between Ewe and Le Mans is that Le Mans can provide estimates of  $M$  at age.

Steven Mackinson showed some estimates of  $M$  from the different models for the options listed above. In conclusion, model-based evidence for mackerel and horse mackerel indicates that changes in total  $M$  over time and changes in  $M$  at age are fairly stable, so there is no strong justification for time varying  $M$ . Declines in cod predation could be balanced by an increase of the hake population. Available models indicate that  $M$  might be higher, but these are inconsistent and uncertain and therefore do not provide for a strong justification for changing the current  $M$  of 0.15. Model estimates can be used to derive possible patterns for  $M$  at age and using the pattern of  $M$  at age from a well-studied surrogate species, an age varying  $M$  can be derived for mackerel and horse mackerel.

Piera Carpi wondered whether the rapid increase in mortality in mackerel with age varying  $M$  was an artifact of cutting the model off at age 11. She wondered whether the increase would be less rapid by choosing age 15.

Steven Mackinson did not think so, given that the function was exponential. In general he concluded that it was worth to look at the issues in more detail since leaving the assumptions underlying  $M$  unchanged for 30 years is inadequate.

Piera Carpi said that the model by Robin Boyd focused on mackerel and she wanted to know whether other species would be included too. If he managed to include horse mackerel, then the issue will be investigated. She was not sure that there would be any results, but at least somebody would look at the issue.

Steven Mackinson explained that the original estimates came from a period when there was no fishing. Another option would be stomach sampling, but that does not actually provide a mortality rate. The model just takes the stomach data and tries to convert them into  $M$  estimates.

Piera Carpi thought that the stock synthesis model could estimate  $M$ , but she did not want to do that if too little information was available since this would not lead to an informative choice.

Steven Mackinson suggested that people could look at total mortality from one year to the next. Estimates for fishing mortality were quite decent and therefore the remaining mortality must be  $M$ . However, changing  $M$  is quite scary, because it can change stock perception tremendously.

Piera Carpi said that  $M$  was also the most difficult parameter to estimate. Even data on stomach content provide uncertain estimates. Empirical models that take into account things like temperature were explored as well, but in the end could not be used due to time issues.

The chairman pointed out that natural mortality is currently 30% higher than fishing mortality which is already at  $F_{lim}$ . He wanted to know how the stock could be managed if  $M$  was maintained at the current level.

Steven Mackinson replied that the situation is just uninformative at the moment, because  $M$  is fixed and nobody knew whether that might change in the future.

Piera Carpi said that she planned to explore  $M$  further, but she also explained that it could only be changed for good reasons.

Steven Mackinson suggested changing the pattern without changing the actual value, given that it was clear that  $M$  is higher on younger and older ages.

Piera Carpi agrees that this was a fair assumption. However, not much more could be done than to explore things and discuss the issue at WGWIDE. If the groups think there is enough evidence to change  $M$ , then the group will make a decision on that.

Patrick Murphy wanted to know whether it would not be possible to cut out an area, cease fishing in that area and then estimate  $M$  from there.

Steven Mackinson responded that this would only be possible if the area cut out was the entire Northeast Atlantic or if people figured out a way to keep stocks from migrating.

The chairman suggested asking WGWIDE to have a look at  $M$ . He said that if  $M$  remains so high that it wipes out the stock, then there will not be any fishing anymore in the future.

Steven Mackinson agreed asking WGWIDE to have a look at  $M$  and he already had some alternatives for the group to explore.

Martin Pastoors said that an  $M$  of 0.15 will not wipe out the stock. Instead he wondered whether  $F_{lim}$  was estimated well enough.

The chairman concluded to formulate an appropriate question to the Commission which will hopefully get forwarded to ICES.

## **6. Draft management strategy from December 2015 including Irish seasonal closure**

The chairman said that previously the group has explored a draft management strategy that had three sections in it: first some general provisions, then a specific harvest control rule (HCR) which could not be filled in given the problems with the assessment, and finally a part relating to implementation and review. The general provisions went into quite some detail and defined the western stock as it is currently defined by ICES. Importantly, the section pointed out that genetic studies would be undertaken to work out the appropriateness of the management area. There were also some very specific conditions around sustainability, pointing out that the management strategy would be in accordance with the CFP, but also include a stability clause within the HCR. The next section said that additional data sources should be added to the assessment. In that regard the benchmark has been quite successful now that information from the IBTS and French and Spanish acoustic surveys has been included. One question that remained in 2015 was whether to include the 1982 year class in the



assessment or not. At the moment it looked like 2008 was also a strong year class, albeit not as strong as 1982 and 2001. Another question was how to supplement the egg survey in the years in which it is not carried out. The final issue was a possible closed area. The proposal put forward recently covers a very large area, but the chairman did not think that such a large area was needed. However, there was the view that a strong year class is coming into the fishery that needs to be protected. For him the most important area was 7g and part of 7j targeting particularly freezer-trawlers. The chairman said that he tried to follow the map provided by the Marine Institute regarding juveniles in different quarters.

Martin Pastoors said that the basic problem had been that the uncertainty of the assessment was so large that no matter what management decided to do, it was not possible to stay above a certain biomass limit. The question was thus not whether people could come up with a new management plan, but whether there was enough information to draft a plan that would not jeopardize the stock. He did not think that the assessment was any more certain now than it was in 2015.

Micheal Cavanagh said that spawning fish should not be touched. In July fish is moving in and there will be a mixed fishery. The only way to protect the spawning fish is by closing the area and the Irish industry has been pushing this for a long time. The Dutch and other fleets can easily move elsewhere while the fleet he represented could not. He pointed out that his fleet also stopped fishing for boarfish in the middle of March, because of mackerel that starts moving into the area around that time.

Martin Pastoors said that there can be different measures in a management strategy including closed areas and minimum sizes. However, the rationale of letting fish spawn to have a viable fishery is too simple. There are many populations that management does not let spawn and yet the stocks are doing fine.

The chairman agreed that there are different measures that could be taken into account. However, he also thought that everything possible should be done to protect the incoming year classes. He said that a closure was needed to protect both juvenile and spawning fish.

Martin Pastoors explained that juveniles and spawning fish are not found in the same area. There are also juveniles in the Channel and the Bay of Biscay.

Piera Carpi suggested to split up length data into compartments to get a better overview.

The chairman said that Beatriz Roel had previously already produced some plots in relation to the issue. However, coming back to the fundamental point raised by Martin Pastoors, he understood that nothing could be done to get the stock back on track and that the reason the focus group did not proceed with the previous plan was because no matter the management strategy, the stock will inevitably fall below Blim.

Martin Pastoors confirmed that the old assessment was so uncertain that the chance of falling below Blim was 100%. He was not sure if this situation has improved much with the new assessment.

The chairman wanted to know why it would not be possible to use the new benchmark data and develop a management strategy around it.

Martin Pastoors replied that this would be possible. However, he doubted that the new strategy will be any better than the old strategy under the old assessment.

The chairman nevertheless thought that the focus group should go ahead and develop a new management strategy. It was also important to him to implement a defined closure and thereby protect the good incoming year class.

Micheal Cavanagh added that by not doing anything people will end up with nothing. In his view the EU also had an obligation to protect coastal communities.



Martin Pastoors said that the logic behind proposing the closure was not clear and there was no explanation on how the closure will benefit the stock nor what the specific objective is. There also seemed to be confusion in regards to whether the closure should protect spawning fish or juveniles. He argued that the proposal had to be much more specific.

Micheal Cavanagh replied that the objective of the closure is to protect the stock for the future.

Romain Soisson said that the French fleet did not catch any horse mackerel in the area.

The chairman was amazed, however, that discard data have shown that the Spanish whitefish fleet has significant discards of horse mackerel in the area. He had not been aware of this previously. He also felt that there was a clear objective about mixing and juveniles. If there was very little fishing in the area, then he did not understand the problem with closing the area in the first place.

Martin Pastoors explained that this was exactly the issue. If there is no fishing in the area, then a closure will not protect anything.

However, Micheal Cavanagh pointed out that there have been vessels fishing two weeks ago.

Patrick Murphy wanted to know whether implementing the closure would lead to a reduction in fishing mortality.

Martin Pastoors replied that the effect on overall fishing mortality would be very small.

The chairman said that there are significant catches in 7j and in the northern part of 6 which have not yet been taken into account.

Patrick Murphy thought that as a focus group all avenues should be explored. Otherwise he feared that people would talk about the same issues all over again in three years from now. To him the proposed closure made sense. He said that the same has been done in the lobster fishery and the measure had a huge positive effect. In his view protecting spawning fish would help the stock recover. He furthermore suggested to also close parts of the Bay of Biscay, if there was a problem in that area too.

Martin Pastoors said that people had to reflect on the implementation of measures and possible alternatives. He said that the simplest measure was to reduce quota. People knew how to implement that and it was a very simple measures. Another option would be to increase minimum landing size to stop targeting juveniles. Area closures are generally difficult to assess, because the vessels will move to other areas where they have other, unforeseen effects.

Piera Carpi explained that it was very difficult to select the right area for a closure, especially when it comes to migrating stocks. Closing the wrong area will not have any positive effects on the stock, as is the case for the mackerel box.

The chairman pointed out, however, that it had been agreed that the mackerel box should stay.

Martin Pastoors said that the only reason for keeping the mackerel box is because there is no evidence that it has either a positive or a negative effect. Therefore it was decided to keep it. However, as a measure it creates a lot of work in terms of implementation and furthermore, it cannot be evaluated.

The chairman said that quota was not the issue here, but catching juveniles was, and he wanted to protect the good year classes coming in.

Ian Gatt pointed out that in the past it took 20 years to get rid of similar measures.

Martin Pastoors added that he had been involved in evaluating the North Sea plaice box at three different times and it has never been possible to show whether the box is working or not, because the effects are always confounded.

Having fished in the area Micheal Cavanagh was certain that the spawning fish were there.

Patrick Murphy wondered whether the egg survey could be carried out in two consecutive years. Once with closure and once without to see if there is a difference.

The chairman said that the main issue was the mixing and if there was no fishing during that period, there will be a benefit to the stock, particularly if there are juveniles in the area.

Goncalo Carvalho said that he agreed with both sides. On the one hand he recognized that it was difficult to prove a positive effect of a potential closure. On the other hand everything that can be done should be done if the stock status is bad. He thought that the NGOs would support a closure, but also pointed out that a closure alone will not be enough. Some of the other measures proposed by Martin Pastoors were quite relevant and of course strong control was needed.

Piera Carpi said that if people wanted to propose a closed area, then they should think carefully about the exact area and how that would benefit a stock and which stock.

Micheal Cavanagh was of the opinion that implementing a closure requires political will which seemed lacking.

The chairman agreed that the proposed closure should be defined in a stricter context. Given the mixing of mackerel, horse mackerel and boarfish all three stocks would be affected by the closure. He still considered having a closure to protect juvenile horse mackerel worthwhile, but fully accepted that the current area was rather big and that a smaller area would suffice.

Martin Pastoors said that it was a minimum requirement to show what people wanted to protect in order for the proposal to be viable. That means, if juvenile horse mackerel are to be protected, a distribution map of juveniles was required. Putting a map on the table that shows the distribution of mackerel is not informative.

The chairman said that the closure was not only about protecting juveniles, but also to avoid mixed catches based on acoustic surveys.

Martin Pastoors wanted to know where he could find the information from the acoustic surveys and the chairman promised to provide it.

Martin Pastoors added that if people wanted to protect juvenile horse mackerel, then the closure should focus on the areas in which they occur and to his knowledge there were other more relevant areas.

Micheal Cavanagh said that not all pelagic vessels record horse mackerel properly, because a lot of white fish vessels do encounter them in the area.

According to Martin Pastoors' information the PFA vessels keep all their catches which is also the conclusion from control inspections. Stocks move around and so do juveniles. Quota and minimum sizes are therefore much more effective measures when wanting to protect juveniles.

The chairman said that this is not true when dealing with mixed catches. He said that there is a problem with mixing and he wanted to find a solution. The issue is that juvenile horse mackerel and mackerel are caught in other fisheries.

Micheal Cavanagh was convinced that the PFA could deal with the closure if his fleet could deal with it. Unlike the PFA vessels his fleet could not move to another area.



## 7. Next steps

The chairman was keen on making some progress in regards to the management strategy. The benchmark results might not be what people had hoped for, but they had to be used and he thought that an HCR could be drawn up based on the benchmark results. He thought that the document from 2015 was a good starting point and people had to go through it again. He also promised to ask the Marine Institute to produce some maps for both mackerel and horse mackerel to show the degree of mixing at that time of the year and to then look at particular areas. There would still be the option to catch outside those areas. He asked Martin Pastoors whether he could have a look at the HCR.

Martin Pastoors responded that the HCR should cover more than just quota. He thought that the Pelagic AC should respond much stronger to signals when they indicate that a stock goes down. He promised to look at potential HCRs as well as other measures. He also planned to show data on catch composition in the area.

The chairman decided to look at the closure together with the Marine Institute. He wanted to know whether there was anything that could be done in relation to the egg survey.

Martin Pastoors suggested asking ICES to look again at the old egg surveys. There were two years in which the southern area was not covered which represents the smallest part of the stock. At the same time the southern acoustic survey has been included for the whole time series.

However, Piera Carpi pointed out that the weight given to that survey is very low and that it is used differently.

The chairman also pointed out that if his suspicions on stock ID are correct, the whole picture will change.

Martin Pastoors replied that that might not make things any better as proven by the situation with 6a herring.

The chairman said that that situation was totally different given that people still agreed that there are two different herring stocks.

Piera Carpi agreed that stock ID is an issue, but she also pointed out that nothing can be done about it at the moment.

Martin Pastoors added that there is very little horse mackerel in the North Sea and resolving the stock ID issues will not produce more fish. The southern stock seems to be doing well, but the uncertainty intervals are very large.

The chairman wanted to know whether it would be possible to build in a stability clause into the HCR.

Martin Pastoors was not sure about that, but said that any stability clause would have to be very flexible in the beginning, because the current stock status required drastic action. He said that it was a huge mistake to increase the quota two years ago and in his opinion the Pelagic AC should have strongly advised against such a quota increase.

The chairman said that in the absence of a management strategy the only other option had been to follow MSY advice.

Martin Pastoors wanted to look at age-length data together with Piera Carpi. Maybe it was possible to do something by looking at minimum size.

The chairman concluded that the group will have to meet again when a more elaborate management strategy was available. He hoped for this to be sooner rather than later and probably in the autumn. The immediate thing was to draft a request in relation to natural mortality. Furthermore, the industry had to make a decision on the genetics. He was also anxious to get a few more scientists to join the



focus group and he hoped that Piera Carpi would be able to continue participating in the group. He wanted to know whether IMARES might be willing to join the focus group as well.

However, Martin Pastoors doubted that IMARES had a strong interest in horse mackerel.

The chairman concluded that some progress had been made and that it was crucial to avoid a similar situation as with 6a herring. He also hoped that at the next meeting all relevant parties will attend in person.

## **8. AOB**

There was no other business.

## **9. End of meeting**

The chairman closed the meeting at 18:00 hrs.



## Action items

- Contact HOMSIR project leader about genetic samples (Martin Pastoors, Edward Farrell)
- Provide cost overview for genetics project before 11 July (Edward Farrell)
- Discuss and decide on genetic funding (NPWG)
- Talk to Jens Carlsson about ATLAS project and how the project could be relevant (Edward Farrell)
- Look into DCF call for genetics data in 2018 (focus group)
- Formulate request to Commission to ask ICES to look at natural mortality estimates (chairman, secretariat)
- Formulate potential HCRs and other measures (Martin Pastoors)
- Provide data on catch composition in proposed closed area (Martin Pastoors)
- Provide information on mixing based on acoustic surveys (chairman)
- Ask Marine Institute to produce maps for both mackerel and horse mackerel to show the degree of mixing at certain times of the year (chairman)
- Reformulate proposed closure (chairman, Marine Institute)
- Examine age-length data and potential changes to minimum sizes (Martin Pastoors, Piera Carpi)
- Schedule next focus group meeting in the autumn (chairman, secretariat)

