

BSAC Executive Committee

Tuesday 29th January 2019

Danish Agriculture and Food Council, Axelborg, Axeltorv 3, 1609 Copenhagen K

1. Welcome by the BSAC Chair

Esben Sverdrup-Jensen, the BSAC Chair welcomed all the participants to Copenhagen. He noted that the morning session will deal with the BSAC administration and internal matters, and the theme meeting in the afternoon will focus on the eastern Baltic cod.

a. Apologies and adoption of the agenda

The Secretary of the BSAC informed that there was a quorum for the meeting (23 ExCom members present and 24 votes). The list of apologies is attached to the list of participants (on the BSAC website).¹

b. Adoption of the minutes from the last ExCom meeting (6th November 2018)

There were no comments to the minutes. The minutes from the last ExCom were adopted.

c. Two ExCom members to check the minutes

Kim Kær Hansen (Danish Fishermen PO) and Conrad Stralka (Baltic Sea 2020) agreed to check the minutes.

Eva Kjer Hansen, Danish Minister for Fisheries and Equal Opportunities and Minister for Nordic Cooperation sent her apologies.² The BSAC has written to invite the Danish Minister to the General Assembly in May 2019.

¹ [http://www.bsac.dk/getattachment/Meetings/BSAC-meetings/BSAC-Executive-Committee-meeting-\(4\)/ParticipantsListExCOM290119FINAL.pdf.aspx?lang=en-GB](http://www.bsac.dk/getattachment/Meetings/BSAC-meetings/BSAC-Executive-Committee-meeting-(4)/ParticipantsListExCOM290119FINAL.pdf.aspx?lang=en-GB)

² The speech that the minister was unable to deliver has been provided and is on the BSAC website [http://www.bsac.dk/Meetings/BSAC-meetings/BSAC-Executive-Committee-meeting-\(4\)](http://www.bsac.dk/Meetings/BSAC-meetings/BSAC-Executive-Committee-meeting-(4))

2. From the Secretariat

a) Update on expenditure 2018-2019

The Secretary of the BSAC handed out to ExCom members a spreadsheet showing the expenditure up to 23rd January 2019 and informed the ExCom that the expenditure was on track, following more or less the same pattern as the previous year. She confirmed that approximately 63% of the budget has been used. She informed the ExCom that the BSAC has paid back to the Commission the balance for the financial years 2015-2016 and 2016-2017. Money has been set aside to pay back the balance for 2017-2018. She informed the ExCom that the auditor who had been the certified BSAC auditor for over 10 years, had sold his company to another small enterprise. The Secretary will meet their representatives in February to discuss the conditions of future co-operation.

The ExCom took note of the expenditure incurred in the year 2018-2019 until 23rd January 2019.

b) The draft estimated budget and work programme 2019-2020

The ExCom Chair presented the work programme 2019-2020. He noted that in implementing its work programme for 2019-2020, the BSAC will be taking a dual approach. A long-term approach will focus on overarching issues, relating to the Common Fisheries Policy. The short-term approach, covering specific meetings and activities, will feed into the long-term approach and provide input. A discussion on the future Common Fisheries Programme will be initiated already now, in order to produce a communication from the BSAC to the Commission. He underlined that the Baltic Sea has been **a forerunner and test region** for many EU regulatory measures, such as for example the landing obligation and therefore plays a key role in the CFP. He appealed to all the BSAC members to actively engage in this work. Referring to the short-term approach, he stated that the main focus of the year's work will be cod and western Baltic herring. He also referred to the list of key external meetings for BSAC participation. The work plan was submitted to the ExCom for approval.

An OIG representative welcomed to the long-term approach in the work programme and the overarching issues related to the CFP reform. He noted that this is a challenging task to go a little bit further and work on the vision. It requires the joint effort of all the BSAC members and a theme meeting, with some external moderators.

A fisheries representative supported the proposal to organise a theme meeting to initiate discussion on the new CFP.

The Secretary of the BSAC presented the draft estimated budget to the ExCom for approval. The budget was based on the resources of full funding with the Commission contribution, 8 Member States and all members, one member awaited. She thanked the members for their timely payment and thanked the Member States for their contributions.

Referring to the budget, she drew attention to some budgetary items that have been slightly adjusted, such as travel expenses. She referred to the savings made when using the meeting rooms at Axeltorv. The allocation for the interpretation takes account of two languages per ExCom + GA meeting, as well as the host country language to encourage participation of local fishermen.

The ExCom adopted the draft estimated budget and the work programme 2019-2020.

c) Draft Terms of Reference for BSAC Management Team

Andrzej Białas, the Vice Chair of the BSAC presented the draft terms of reference for the BSAC management team, created to deal with administrative, management and operational matters and asked the ExCom to comment.

A fisheries representative asked for the reason behind establishing a management team with the same tasks as those already appointed to the Secretariat, the Chair and Vice Chair of the BSAC and the Chairs of the working groups.

The BSAC Vice Chair explained that the management team is to deal with the practical and organisational matters related to the BSAC work, and which do not necessarily need to be discussed in the ExCom, such as preparing drafts for work programmes and budgets, discussing venues and agenda points for upcoming BSAC meeting, addressing invitations to external meetings, projects and consultations.

An OIG representative noted that a management team is a practical and transparent way to deal with administrative and practical issues. Another OIG representative, member of the management team, stated that the management team will strictly follow the Terms of Reference and will not take any policy decisions.

The BSAC Chair explained that such a management team has proved to be a good solution to facilitate the practicalities in the Pelagic Advisory Council. He underlined that such a strong team will support the work of the Chair and could represent the BSAC in external meetings.

The ExCom adopted the Terms of Reference for the BSAC Management Team

d) Secretariat note on Natura 2000 and fisheries management measures in the Baltic Sea

The BSAC Chair reminded the ExCom that the Secretariat had been given the task to prepare a note on Natura 2000 and fisheries management measures at previous ExCom meeting. He praised the Secretariat for doing a tremendous work on this matter.

The Secretary explained that the BSAC Secretariat was asked to gather information that could answer some fundamental questions concerning fisheries management measures, so as to prepare for situations where the BSAC is invited to comment on specific draft fisheries management plans and measures in Natura 2000 areas in the Baltic Sea. Four questions were proposed by Peter Breckling, Union of German Cutter Fishery. The Secretariat was only in a position to answer the first question related to the fisheries management measures which are already in place or are planned at the moment in the Baltic. A short report from every Member State or relevant bodies had been prepared. Contact people were identified in each Member State in the Baltic. She thanked the Member States for their co-operation and assistance.

The Secretariat felt that in order to address the remaining questions, the BSAC should hold a meeting, invite Member States and Commission representatives and have thorough discussions.

Nils Höglund, Chair of the sub-group on ecosystem based management noted that the note prepared by the Secretariat is a good starting point and the working group will address this issue at its next meeting in March. Experts from the Member States will be invited to this meeting.

2. Confirming the Focus Group on Western Baltic Spring Spawning Herring

The BSAC Chair reminded the ExCom that Claus Reedz Sparrevohn, Danish Pelagic PO, member of the Focus Group is the expert on how to design a rebuilding plan. Following the decision to hire a consultancy taken during the first meeting of the Focus Group by skype on 28th September 2018, Claus Reedz Sparrevohn contacted the consultancy Landmark, to check on costs. This consultancy has been engaged by the Pelagic AC for the work with western horse mackerel. They have not yet given a quote. The Chair noted that DTU Aqua has had a research project, which includes western Baltic herring, approved for funding through the EMFF, and that it would be opportune for the BSAC to follow the developments in that project.

The Chair informed that he took the opportunity (and supported by the PELAC) to raise the issue of the zero advice in 2018 for the western Baltic herring during the MIACO meeting (ICES and Advisory Councils). The Chair expressed concerns from the members on how to deal with such rapid changes in the reference points: a zero advice is quite dramatic. ICES explained how the process developed (WKPELAC in 2018); however, there is no process in place for phasing in the changes of the reference points.

The Chair explained that ICES will conduct a workshop on management strategies, on 4th-8th February 2019. One of the main focus issues is how to work with stocks below B_{lim} and that the goal of the workshop is to design guidelines for rebuilding plans.

The focus group will meet once the results from the workshop and guidelines from ICES are available.

The Chair underlined that it is not realistic that a rebuilding plan will be in place for the advice for 2020.

A representative of Low Impact Fishers of Europe (LIFE) noted that LIFE members from Germany and Poland are directly involved in western Baltic herring fishery and therefore a representative of LIFE would like to participate in the working group as an observer.

The ExCom accepted a representative of LIFE as observer in the Focus Group on Western Baltic Spring Spawning Herring.

3. Confirming the Focus Group for statutes and written procedures

The BSAC Chair informed the ExCom that work of the Focus Group for statutes and written procedure, established by the General Assembly on 6th November 2018 will begin as soon as possible. The Group, to be led by the ExCom chair will prepare a draft for consideration by the General Assembly on 15th May 2019.

A representative of Low Impact Fishers of Europe (LIFE) volunteered as a contributing observer on behalf of LIFE to the Focus Group. He underlined that he is formally nominated by LIFE members, who are also members of the BSAC, as their representative.

A fisheries representative noted that the Focus Group will deal with the internal procedures of the BSAC and should be composed of the BSAC members. LIFE is not a member of the BSAC. As a matter of principle this group should not be open to non-members.

Several OIG representatives noted that the group should be open to people with expertise and as such the representative of LIFE can contribute to the work of the group.

A representative of Low Impact Fishers of Europe (LIFE) explained that according to the internal policy of LIFE, only LIFE member organisations are members of Advisory Councils. His request to represent LIFE in the Focus Group is based on practical reasons.

Another fisheries representative stated that principles should be followed in the first place by a group dealing with procedures. He noted that a LIFE representative can represent one of the LIFE members in the Focus Group.

A representative of a small scale organisation, member of LIFE, stated that a LIFE representative will represent the interests and speak on behalf of LIFE members in the Focus Group.

After some further discussion, **the ExCom** decided that further discussion on this matter should be carried by the Management Team. The final decision will be taken by the ExCom after having seen the opinion of the Management Team.

The ExCom approved the Terms of Reference of the Focus Group for statutes and written procedures.

4. Date and venue of next meeting

The **ExCom** decided that the next meeting will be held in the afternoon of 14th May 2019, in Copenhagen.

5. AOB

- **A request from the Marelitt project for a letter of support from the BSAC for a second phase**

The **BSAC Secretary** informed the ExCom that the BSAC Secretariat has been contacted by the MARELITT project and WWF Poland and asked to send a letter of support for a second phase of the project. She reminded the ExCom that the BSAC had been asked and agreed to provide a letter of support to the MARELITT project phase I, which it sent to WWF in December 2014.

The MARELITT Baltic project has been dealing with the problem of derelict fishing gear in the Baltic. The MARELITT project team are currently in the process of developing their application and are applying for funding from INTERREG.

An OIG representative stated that the BSAC is an advisory body and as a matter of principle it is not the core business for the BSAC to support or get engaged in any projects. In his view, principles of the BSAC engagement in or support to such projects should be discussed and set by the ExCom. Another OIG representative supported this view and recalled the discussions on the BSAC participation in projects held last year, in which the BSAC members expressed concerns about the engagement of the BSAC in external projects. Support could be given by individual members of the BSAC and they could engage in projects from their own organisations.

Some fisheries representatives noted that the BSAC could support some scientific projects, following approval of the ExCom. Last year, the ExCom decided that the BSAC Secretariat will inform its members on any projects in which they could become engaged as individual organisations.

Another fisheries representative noted that any further actions undertaken in the framework of MARELITT related to gear marking should be closely followed by the BSAC.

An OIG representative proposed to put guiding principles of the BSAC concerning support and engagement in external projects on the website. Such principles could clearly indicate that the BSAC will not support research projects, but will assist in getting support from its member organisations representing themselves and not the BSAC.

The ExCom Chair referred to some scientific projects directly related to the BSAC work, such as the projects on western Baltic herring and BALTFISH projects. He proposed that proposals for project support could be discussed and filtered by the Management Team. Any active involvement of the BSAC in a project would require discussion and decision of the ExCom.

Two OIG representatives supported the proposal put forward by the ExCom Chair.

The ExCom decided that proposals for project support will be filtered by the Management Team. The final decision on active involvement of the BSAC in a project would require discussion and decision of the ExCom. General provisions concerning project support by the BSAC should be drafted and put on the website.³

The ExCom decided to lend support to a further phase of the MARELITT project, for consistency with the support given to the first phase of the project.

- **Letter and request from the PELAC for support for a joint ACs letter on applying for EMFF Post 2020 funding and EU funding research projects**

The ExCom Chair referred to the request of the Pelagic Advisory Council to support a joint ACs letter on applying for EMFF Post 2020 funding and EU funding research projects. The PELAC is requesting that capital funding is provided under the EMFF to Advisory Councils to carry out projects of direct relevance to the ACs and their role under the CFP. Such funding could also be of relevance to the BSAC.

An OIG representative drew attention to the fact that the Advisory Councils are not research or project driven bodies. He referred to the practicalities of project management and accounting that could create an additional burden for the BSAC. In his view, the BSAC should refrain from supporting the PELAC request.

The ExCom decided not to write a letter of support and to follow the response of the Commission to the request of PELAC.

³ After approval of the BSAC chair, a statement has been placed on the BSAC website:
<http://www.bsac.dk/>

- **On eels and seals: Commission consultation on eels and how to proceed; BALTFISH symposium on seal-seal/fisheries interactions 19th-20th March 2019 Gothenburg**

Nils Höglund, Chair of the sub-group on ecosystem based management referred to the Commission consultation on the evaluation of the eel regulation from 2007⁴. The evaluation looks in particular at the content and implementation of the eel management plans and Member State reporting under the Eel Regulation and is addressed to individual respondents. This public consultation is being carried out in an online format. It is not possible to give a joint BSAC response in such a format. The Commission has informed the Secretariat that the BSAC members should reply to the online questionnaire individually. However, the on-line questionnaire gives the possibility to upload additional position papers. The BSAC joint position papers on eel prepared in the framework of consultations held in 2017 and 2018 could be sent as attachments.

The ExCom decided that the BSAC members should be encouraged to reply to the Commission consultation on eels individually. The ExCom decided that the BSAC should send to the Commission the BSAC proposals for possible ways forward to improve the situation of European eel prepared in 2017 as well as BSAC replies to the Commission's letter and questions on measures to take in 2018 in order to promote the recovery of eel as the BSAC input attachments to the on-line questionnaire.

Referring to the symposium on seals, organised by BALTFISH in Gothenburg on the 19th-20th March 2019, **Nils Höglund, Chair of the sub-group on ecosystem based management** stated that he will represent the BSAC as invited speaker and convey the positions from the BSAC.

The Secretary informed that the BSAC can in addition send 3 representatives to this meeting. She asked BSAC members to communicate their names to the Secretariat.

Nils Höglund noted that the BSAC working group to deal with Natura 2000 and fisheries measures will take place in March, a date and place to be communicated later.

- **Forthcoming meeting of the EFCA Advisory Board meeting 27th February 2019, Brussels: information to ExCom**

The ExCom Chair informed that he will attend the meeting of the EFCA Advisory Board on 27th February and asked members for input on control issues.

⁴ Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel. The Commission consultation https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-1986447/public-consultation_en

Information from BALTFISH

On behalf of the Swedish Presidency of BALTFISH, **Gry Sagebakken** from the Swedish Agency for Marine and Water Management informed a workshop on eel will take place on 8th May in Gothenburg and the BSAC will soon receive an invitation. She also referred to the letter from the BALTFISH Presidency asking the BSAC to consult the Joint Recommendation concerning the alternative codend for T90 and asked the BSAC to respond by 4th February 2019.

BSAC Theme meeting 13.00 – 17.00

The same place as above

Spotlight on the eastern Baltic cod

Scientists and experts were invited by the BSAC to present information on the state of the eastern Baltic cod stock, as well as the results of recent surveys, also giving supplementary information on predators and on the ecosystem.

In opening the meeting, **Esben Sverdrup-Jensen, the BSAC Chair** welcomed all participants to the first special theme meeting that the BSAC has organised, and welcomed in particular the Member State representatives, Commission, and all the experts who had accepted the invitation. He was pleased to see such a massive attendance from the BSAC members.

He noted that sometimes, it is very useful to zoom in on one particular area of work, in this case the eastern Baltic cod. BSAC members often have differing views on matters, depending on where they stand. But this time, all are worried. The eastern Baltic cod is in a critical state. There is clearly a major crisis affecting it and the problem is widely recognised. Reduced growth is both observed and described and the markets have reacted. The influence of parasites and eutrophication are becoming increasingly acknowledged as potential causes.

Fishing is not the only factor that is having an influence, so the stock cannot be improved by managing the fishing pressure alone. The BSAC has made this issue a priority. He encouraged the managers and the decision takers to take the matter seriously and react to the situation. Long term solutions to this problem need to be identified.

He welcomed the leading scientists and experts from around the Baltic. He stated that participants want to hear what they have to say about the problems affecting the eastern Baltic cod: from the recent surveys, about predators, other ecosystem factors, and about the possible courses of action that can be taken. The issues and information that come up at this meeting will be taken forward to the planned benchmark that ICES is holding in the first week of February. He concluded that the meeting was expected to culminate in some clear recommendations which the BSAC can send to the European Commission and BALTFISH and that can guide the BSAC input into the upcoming ICES work.⁵

⁵ The introduction by the chair is on the BSAC website: [http://www.bsac.dk/Meetings/BSAC-meetings/BSAC-Executive-Committee-meeting-\(4\)](http://www.bsac.dk/Meetings/BSAC-meetings/BSAC-Executive-Committee-meeting-(4))

State of the eastern cod stock, surveys and forthcoming ICES benchmark

Margit Eero, DTU Aqua presented stock status of the eastern cod and ecosystem conditions⁶. There is a decline in the biomass and fishing pressure on eastern Baltic cod. Eastern cod is in a very poor condition. The proportion of individuals with low weight is around 20%. Cod is already maturing at 20 cm and this is a stress sign for fish. Fish need to spawn before they die. Parasite infections have increased. There is not much large cod left. The last stronger year classes were in 2011-2012. All these biological developments in the stock are very worrying. She referred to the ecosystem challenges with respect to this cod stock. Cod is distressed by several factors. Hypoxic areas have increased. Inflows of water from the North Sea are rare. Lack of oxygen affects the metabolism of cod, as well as benthic organisms. The predation by grey seal has increased. There is a problem with availability of fish prey for the cod, mainly sprat. Fishing is only one of the impacts. Several bad developments are occurring at the same time. Scientists need better knowledge to predict the future development of the stock, reproductive success and ecological interactions.

Discussion

Margit Eero answered questions put forward by participants. With reference to sprat as food for cod, she explained that despite the abundant sprat stock in the northern areas of the Baltic, the condition of Baltic cod is also poor. Stefan Neuenfeldt, a scientist from DTU Aqua explained that cod eat sprat when they reach 30 cm and at present, they hardly reach this length.

An OIG representative pointed to the fact that it is important for managers to take into account that management decisions will be taken in the lack of scientific certainty. Margit Eero drew attention to the fact that although there are many studies on the stock, science is a little behind. Work is on-going on this.

The BSAC Honorary Chair noted that despite the fact that the studies on Baltic cod have been conducted for over 100 years, scientists are still learning new facts. He noted that the problem with poor condition of cod starts earlier than the mature stage. There are probably some environmental factors behind.

Margit Eero continued her presentation on stock assessments.

She presented the history of the cod assessment and referred to the fact that progress has been made in understanding the growth. The aim of the ICES work in 2019 is to establish a quantitative stock assessment. The otoliths, length frequency data and tagging point to the reduced growth. The main challenges for the stock are reduced growth and natural mortality.

⁶ All the presentations can be found at: [http://www.bsac.dk/Meetings/BSAC-meetings/BSAC-Executive-Committee-meeting-\(4\)](http://www.bsac.dk/Meetings/BSAC-meetings/BSAC-Executive-Committee-meeting-(4))

Krzysztof Radtke, National Marine Fisheries Research Institute, Gdynia presented the cod tagging programme on cod: TABACOD. The aim of TABACOD is to improve the management of eastern Baltic cod by providing new information on growth and mortality patterns, and to develop a validated method for deriving this information from historic and future samples. The project is supported financially by Baltic Sea 2020. Data from historic tagging experiments will be collated to provide the empirical information for the development of statistical growth models for stock assessment purposes. An international tagging programme involving four Member States is being carried out. Historical data and the data from tagging is used for the development of statistical growth models and independent estimates of mortality. The project also aims at developing and implementing a new ageing method for estimating fish growth based on otolith chemistry. The results indicate that the growth of cod has slowed down.

Discussion

An OIG representative expressed concerns about the return of the tags in the TABACOD project. Krzysztof Radtke responded that the present recapture rate is at the level of 4-5%, but will be assessed again at the end of the project. The return of tags is lower than expected.

A fisheries representative underlined that since the chemistry of the otoliths is well known, the scientists should be able to establish an age reading method. The consequences of the lack of information for the management are very important.

Krzysztof Radtke noted that the age reading based on chemical analysis had not been tested on the eastern cod and there was a need to validate its usefulness for age reading of the eastern cod.

Another fisheries representative commented that the return of the tags is low because there is hardly any cod fishery in the eastern Baltic. There is strong support for the recovery of tags among fishermen.

A representative of small-scale fishermen noted that tags are not always visible. Very often they are found during processing and in such cases are useless for the science.

Krzysztof Radtke stated that the information from the tags retrieved at processing plants is still useful for research.

Margit Eero noted that age reading has always been difficult. At present the age reading is extremely difficult. TABACOD has helped to make progress there. Scientists are hoping to find a method to use microchemistry. She referred to the ICES benchmark planned for the first week of February 2019. It will focus on growth and mortality. Some new data sources will be included, such as assessment of the spawning stock biomass based on egg production, based on ichthyoplankton surveys carried out in the Bornholm Basin. It can provide an SSB estimate independent of the catch and trawl survey data. The benchmark will also focus on the forecast and reference points.

Krzysztof Radtke, National Marine Fisheries Research Institute, Gdynia presented the hydrological situation in the southern and eastern Baltic, on the basis of surveys carried out in the 4th quarter of 2018 by Polish scientists. The most important finding in this survey is the increase in water temperature in much larger areas than in 2017. Cod can survive in temp up to 20 degrees, but prefers temperatures between 3-9 degrees. 2018 has been the hottest year for the oceans since 1958. In the Baltic, the record high water temperature was noted in August 2018. In the Eastern Baltic large parts of the bottom were found to be oxygen depleted. The hydrological conditions have a potential impact on the cod stock distribution. The present conditions are not favourable for cod spawning. New data will be collected during the survey in the 1st quarter of 2019.

Marie Storr-Paulsen DTU Aqua presented the information from the newest survey conducted in the 4th quarter of 2018. Survey information is used for stock assessment. The surveys conducted in November 2018 by Danish scientists gave disappointing results. There was more garbage than fish in the trawl. Referring to the oxygen levels she noted that the survey covered much larger areas than the previous one. The oxygen depletion around Bornholm is going deeper. The survey also looked into the lever worm infections in cod. The last survey indicated the larger the cod, the more parasites in them. According to the latest survey, the number of cod below 25 cm and between 25-40 cm have decreased. Cod above 40 cm can hardly be found. There are no signs of improvement for 2019. As concerns the landings, in 2017 for the first time more cod were caught in SD 26 than in SD 25. The cod seems to be moving to the east. The overall situation is not positive.

Keith Brander DTU Aqua and Baltic Sea Center, Stockholm University presented a new project on eastern Baltic cod, carried out with the Baltic Sea Centre. The project aims at conducting a scientific evaluation and synthesis of all relevant knowledge and will try to determine what factors actually caused the cod decline.

There is a great deal of uncertainty as to why the eastern stock is in such bad shape. Possible primary causes are food limitation (quantity and quality), parasites, poor environmental conditions, high mortality on bigger fish, density dependent effects (a lot of small fish and shrinking food resource affect cod growth. Predation mortality may also be density dependent) and genetic changes. This 18-month project is expected to focus on data mining and reworking of historic fisheries time-series, new analysis of changes in biological, physical and chemical environment, re-evaluation of existing literature and assessments, analysis and models to find best explanations of observed changes and scenario models to explore future impacts and management options.

Discussion

Answering a question put forward by a fisheries representative on the single most important factor behind poor condition of cod, Keith Brander stated that the cod stock is negatively affected by multiple factors.

An OIG representative noted that the situation is so dramatic that it is not the time to play a blame game. There is a need to address multiples causes of such a situation without further delay. The TAC cuts in recent years have not improved the situation.

Responding to a question on the relevance of assessing the discards of cod, Keith Brander stated that discard estimates are based on scientific observer programmes and amount to 10-11% in 2018. They are taken into account in the stock assessment.

A representative of LIFE referred to an action plan for eastern Baltic cod prepared by LIFE in 2018, following the discussions on the ICES advice for 2019. The plan covers the measures which need to be undertaken to improve the situation.⁷

A fisheries representative noted that certain environmental factors such as water salinity or temperature cannot be controlled. This makes the situation even more complicated.

In the course of the discussion, it was noted that the TAC has been underutilised for many years. Even after adding the estimated discards, there is no overfishing of the allowable quota.

An OIG representative referred to the fact that action should be taken to minimise negative impacts on the cod stock, for example the ICES advice should be closely followed when taking decisions on the TAC. For several years, the decision makers went above the limits recommended by ICES. The spawning closures were reduced in 2018. They should be reinstated in their previous range. The sprat fishery in terms of TAC and distribution (spatial management plan) should be addressed to provide more food for cod. Discarding should be reduced.

In the course of the discussion, it was noted that although in recent years, the number of small cod was high due to the recent good year classes, the current trends in the abundance and biomass are decreasing.

A representative of LIFE referred to the fact that the fishing gears currently in force for the cod fishery are not selective and increase discards.

Marie Storr-Paulsen drew attention to the high discard rates and manipulation made to some codends. Scientists need the best discard estimate for their assessments.

Responding to a question on nutrient input in the Baltic, relevant to cod, Stefan Neuenfeldt, DTU Aqua noted that benthic productivity is limited due to lack of oxygen. The changes in environmental conditions change greatly from year to year. Nutrient input has an impact on zooplankton abundance. The low level of zooplankton negatively impacts the herring stocks.

It was also noted that although salinity or temperature cannot be changed, a lot can still be done to reduce discards. The current technical measures still do not meet the demands of the landing obligation.

⁷ <http://lifepatform.eu/action-plan-for-eastern-baltic-cod/>

Information on seals and their impact on the cod

Jane Behrens DTU Aqua presented: "The seal associated cod liver worm in eastern Baltic cod".

The grey seal is the final host to the nematode parasite *Contracaecum osculatum* (commonly referred to as cod liver worm), to which cod (*Gadus morhua*) is one of several transport hosts. The abundance of infection (number of parasites per infected fish) was highest in the most eastern areas of the Baltic, with mean abundance varying from 27 to 40 parasites in cod 35-50 cm in length. Fish were collected to investigate the effect of worms on the liver function, the immune reaction, structural damage of the liver, potential costs of hosting the worm and growth. Preliminary analysis suggests that the nutritional status of the fish (evaluated by protein, water, oil and energy content of fish and liver) is affected when the parasite load is high. Fish with the greatest amount of parasites do not survive.

It needs to be investigated whether there is also a correlation between the number of worms and the reproduction in cod. Several Baltic Member States (including Denmark) have started to make visual registrations of liver worm in cod livers on monitoring cruises, in order to follow the temporal and spatial presence of this parasite. A shared data base should be established.

Discussion

A fisheries representative noted that during a research project conducted by local fishermen in Sweden, in co-operation with the Stockholm University, cod were kept in cages and fed. When properly fed, cod increased in weight by 37% in 8 weeks. Cod dies in the sea without proper food. In his view, this is a huge problem for the cod in the Baltic.

Jane Behrens noted that fish in poor health are more often infected with parasites. There is more infected fish in the eastern Baltic, because there are more grey seals.

Lotte Kindt-Larsen DTU Aqua spoke about the natural mortality of cod. She noted that during the past few decades, the Baltic grey seal population size has increased significantly. The population grows because the grey seal is protected and the seals have no natural enemies in the Baltic. Seals concentrated around Bornholm. There are approximately 35.000 grey seals in the Baltic (according to the recent counts). This figure is underestimated.

First pictures of cod and fish species damaged by seals reached appeared ten years ago. Seals eat fish, but also scare them away. Lotte Kindt-Larsen referred to the damage caused by seals in Denmark. Studies were conducted into how much the seals eat. Scats were collected in the Danish and Swedish waters to investigate the effect of grey seals on cod. To investigate this, 820 scats were collected at the Måkläppen and Tat areas. Cod constituted 83% of the total consumption by grey seals. In total, grey seals in the south central and western Baltic had an annual consumption per individual of 1.370 kg cod. This high proportion of cod in the diet of grey seals in the central and western Baltic calls for further assessments of the impact of the seals on the Baltic cod stock.

Thiamine, thiamine deficiency and the impact on cod

Lennart Balk, Professor in Environmental and Biochemical Toxicology, Department of Environmental Science and Analytical Chemistry (ACES), Stockholm University

made a presentation on severe thiamine deficiency in Baltic cod in the Bornholm Basin. Lack of thiamine (vitamin B1) among wild animals is a much more common problem than previously known. Studies were conducted by researchers from 5 countries and 13 universities and other research institutions in Europe and North America, coordinated by Professor Lennart Balk at Stockholm University. The results show, among other things, that the high prevalence of thiamine deficiency leads to poorer health and poor reproduction. In the long term, the effects can lead to decreasing and disappearing populations.

Lennart Balk presented the present knowledge on what is thiamine and what are the effects of its deficiency in cod. Thiamine deficiency causes several sublethal effects such as metabolism, memory, behavioural and orientation disorders. Its deficiency also results in immune suppression and reduced feeding. It can also affect breathing. Thiamine deficiency is caused by a decreased uptake, increased metabolism or excretion or because it is missing in the food. Studies financed by Baltic Sea 2020 were conducted in the Bay of Hanöbukten in the Bornholm Basin. 80% of cod were found to have thiamine deficiency. Thiamine deficiency could be a potential driver of wild population decline. An important conclusion is also that the thiamine deficiency varies in strength, depending on time and space.

Conclusion + adoption of a statement/recommendations

The ExCom Chair thanked all the experts for their excellent presentations which gave the latest information from the recent Baltic research and explained which environmental factors are influencing the cod. He also thanked the participants for their good input to the discussions. He noted that he was looking forward to similar theme sessions, hopefully on a more optimistic subject.

The BSAC Recommendations and conclusions were drafted by the Secretariat and the Management Team on the basis of the presentations and the discussion held in the meeting and a draft presented to the meeting. They were subsequently sent to the ExCom for comment and adoption.

Conclusions and recommendations from the BSAC Executive Committee theme meeting on eastern Baltic cod

On Tuesday 29th January 2019, the Baltic Sea Advisory Council Executive Committee hosted a theme meeting on the eastern Baltic cod. It is grateful to the scientists and experts who came to present their latest information and data on the stock status and ecosystem conditions and challenges facing the eastern Baltic cod stock. In their presentations, they made clear that the eastern Baltic cod is stressed by multiple factors.

The latest Baltic International Trawl Survey confirmed reduced catches by size and area, as well as reduced oxygen levels. The cod is experiencing reduced growth and reduced biomass. There is continued discarding, in particular of cod below minimum conservation reference size, despite the introduction in 2015 of the landing obligation, and there is a need for an improved management of the cod fisheries. Changes in hydrology were noted as having an increased negative affect. Seal worm are affecting the liver of the cod, and seals are causing damage to and predated on the cod. Thiamine deficiency was highlighted as another potential stress factor.

The meeting reinforced the accumulated knowledge that the eastern Baltic cod is in an acute critical state.

The BSAC supports the scientists in their work to improve our understanding of the factors at play. The ICES stock assessment has developed since 2014 and the BSAC anticipates the results from the ICES benchmarking meeting 4th to 8th February 2019 to go through all the available data towards developing a quantitative assessment of the stock.

The BSAC supports all research projects which can bring together the necessary knowledge and data in order to make the necessary management decisions. The BSAC will play an active part in coming up with suggestions.

The BSAC calls on BALTFISH Member States and the Commission to take the matter seriously, to make it the primary priority, to make available the necessary resources for further research and react to the situation. **All possible measures must be explored in establishing an emergency plan for eastern Baltic cod.**

The call is to make use of the information gained in order to help us to work together on this, to exchange information and increase dialogue. The BSAC is fully committed to facilitating this work.