Copenhagen 23rd November 2020

[to be sent at the latest two weeks before the meeting]

Agenda point 3

Draft on stickleback for the Pelagic Working Group Monday 7th December 2020

Short background – how it came up

Some members[1] of the BSAC raised the issue of the increasing population of stickleback in the Baltic at a Joint Working Group in June 2020. The issue was dealt with in more depth at an Ecosystem Based Working Group in September, with the participation of scientists.[2]

It was agreed to hold a Pelagic Working Group (7th December 2020) in order to clarify outstanding issues, and for the BSAC to develop guidelines for a trial fishery of stickleback as a first step.

Issues raised by BSAC members during the BSAC meetings[3]

- The growing population of stickleback could have a negative impact on the ecosystem and other species (cod). Stickleback eat the same food as commercial fish. In the opinion of fishermen, stickleback should be fished more intensively. They recommended the development of a stickleback fishery in the Baltic Sea.[4]
- The drastic growth of the stickleback population might be a consequence of habitat destruction and collapse of predatory fish stocks.
- Lithuanian fishermen[5] called for quick steps to initiate a commercial fishery for stickleback in order to help fishermen in a critical situation. Fishing for stickleback would help to rescue the Baltic cod.
- According to the observations made by fishermen, there are plenty of stickleback in SD31. The Swedish fishermen would like to start fishing for this species, under good, long-term management based on science. Over 300 tonnes were caught as bycatch on only 2 fishing trips, targeting pelagic species. Such a bycatch lowers the quality of the targeted catch. A smaller mesh size should be introduced for this fishery

[1] The issue was put forward by the Confederation of Fishermen and Fish Processors of West Lithuania. It was question about the stickleback fishery as a part of a plan to save cod.
[2] http://www.bsac.dk/Meetings/BSAC-meetings/Ecosystem-based-working-group
[3] For all the viewpoints, please read the reports
[4] Marine Ingredients refer to a report: The first large-scale assessment of three-spined stickleback (Gasterosteus aculeatus) biomass and spatial distribution in the Baltic Sea, ICES Journal of Marine Science and figures from Olsson et al. 2019. Stock biomass in the Baltic Sea 1974-2019. And Power point on biomass: http://www.bsac.dk/Meetings/BSAC-meetings/BSAC-Joint-WG
[5] http://www.bsac.dk/getattachment/Meetings/BSAC-meetings/Ecosystem-based-working-group/Algiurdas-Ausra.pdf.aspx?lang=en-GB

- According to some fishermen, ecosystem-based management with a sound scientific background should be used for a stickleback fishery. All impacts of this fishery on the ecosystem should be taken into consideration. However, a precautionary, monitored pilot fishery could be initiated without any delay and further developed together with scientific advice.
- A representative of OIG noted that scientific advice should be provided by ICES before starting the fishery for stickleback.
- A stickleback fishery should be carried out on a large scale, not only in costal zones. A smaller mesh size should be introduced.
- It is important to weigh the food link between stickleback and cod in an ecosystem-based perspective. The stomach content of cod has always consisted of stickleback in combination with, for example, herring and sprat. Stickleback is thus an important food resource for Baltic cod.
- Stickleback is less widespread in the southern Baltic Sea than in the areas further north. There could be a connection whereby stickleback has increased more in the northern part of the Baltic Sea, where the cod stock has been weak in recent decades and not able to predate as hard on the stickleback stock, as may have been possible in the southern parts of the Baltic Sea, where there was more cod than in the rest of the Baltic Proper. Stickleback is most widespread in the central Baltic area, between the islands of Gotland and Öland in SD 27 Estonian fishermen report that they have not witnessed any increase in numbers or in bycatches. Some thought that there were more 10-15 years ago. They have witnessed more during the spring, coming with herring to the spawning stock.
- It may be important to regulate a future directed fishing for stickleback only in those areas where the prevalence of stickleback is high. This would give the eastern Baltic cod stock the best conditions for recovery.
- The problem with the growing population of stickleback is very specific to the Baltic. There is a need to gather more scientific information on the impact of this species on other fish and the ecosystem.
- Derogations from the provisions of the technical measures regulation are possible in scientific projects, with a limited number of vessels.

<u>What key things the scientists have highlighted</u>

- **Colm Lordan (ACOM, ICES)**[6] noted that there is some evidence that the population is increasing. Stickleback feeds on fish eggs. It is not taken into account in the ICES work, due to the lack of data. Sweden and Estonia are carrying out research projects on stickleback.

- **Ulvi Päädam, Ministry of Environment, Estonia**, presented the study on stickleback carried out in Estonia in 2017.[7] She informed that stickleback is widely

[6] At the Joint WG 9th – 10th June 2020

[7] http://www.bsac.dk/getattachment/Meetings/BSAC-meetings/Ecosystem-based-working-group/stickleback_UlviP.pdf.aspx?lang=en-GB

distributed in the Baltic. It hatches in coastal waters, migrates to the open sea. It returns to spawn after one year. It is abundant in the pelagic zone. Sticklebacks have high fat content and can be used in fish oil production, fishmeal, animal feed and fertilisers. There was an important local fishery of stickleback in Estonia in the 20th century. In their study they used hydroacoustic methods and trawling to assess the stock biomass, and bycatch rates of other pelagic species. The survey was conducted with a special, small trawl. A mesh size of 3mm was used. The medium abundance of stickleback was 2.2-4.9 tonnes per nautical square mile, with high variation of abundance between rectangles. Monitoring of stickleback is recommended in order to assess the current population density. By-catch by number did not exceed 10% of pelagic species, but by weight amounted to approx. 25% of herring. Bycatch rates in commercial fishery have not been assessed. The study concluded that trawling during daytime gives a higher bycatch.

- **Jens Olsson, PhD, Institute for Aquatic Resources, Swedish University of Agricultural Sciences**[8] presented the latest information available on stickleback, including recent trends in population development. A 50-fold increase of the population has been noted since 2000, and stickleback are still on increase. The majority of stickleback are found in SDs 27 and 29, and there are also significant numbers in SD 30. Stickleback predates on perch and pike larvae. They are also an important food resource for predatory fish, seals and birds. Since the early 1980's, more and more places in the Baltic have been controlled by sticklebacks. They decrease the quality of the habitat by causing eutrophication symptoms. Sticklebacks compete for food with herring and sprat. The drivers behind population development of stickleback include eutrophication, fishing and climate change, but these are still not fully known. A risk analysis should be conducted before initiating a fishery. Sticklebacks play an important role in the ecosystem and should not be wiped out. The reason for a lower abundance of sticklebacks in SD31 could be due to strong salmon rivers, and a high population of ringed seals which feed on sticklebacks. There are indications that an increased population of seals could favour an increase of stickleback population.
  It is a short-living species, and it could easily be fished down.
- It was also informed that a Swedish study is ongoing and should be finalised end of this year.

[8] http://www.bsac.dk/getattachment/Meetings/BSAC-meetings/Ecosystem-based-working-group/Olsson-presentation-BSAC-20200921.pdf.aspx?lang=en-GB

What's proposed for the Pelagic WG Monday 7th December 2020

The Pelagic Working Group is tasked to discuss how to approach a stickleback fishery in a controlled and responsible manner and to develop a pilot fishery.

The BSAC should develop guidelines for a trial fishery describing the background of the problem (including ecosystem considerations), and including the implications of this fishery in terms of by-catch, relevant changes needed in the technical measures, and criteria for data collection and handling of the catch.

Guidelines for a trial fishery

- Background

Reference to Article 25 Technical Measures Regulation 2019/1241[9] [Chapter IV] Scientific research

- Ecosystem considerations

By-catch considerations

Recommended changes to technical measures

Article 27 [Chapter V] Conditions in relation to mesh size specifications

Data collection

Catch handling

[9] http://www.bsac.dk/getattachment/Meetings/BSAC-meetings/BSAC-Pelagic-Working-Group/Techmeasures2019_1241ENG.pdf.aspx?lang=en-GB