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IFFO RS
Global Standard for Responsible Supply
of Marine Ingredients

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Global Standard for Responsible Supply of Marine Ingredients Fishery Assessment Methodology and Template Report V2.0



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Fishery Under Assessment	Sprat (<i>Sprattus sprattus</i>) Subdivisions 22-32, Baltic Sea (Denmark, Latvia)
Date	November 2018
Assessor	Virginia Polonio

Application details and summary of the assessment outcome				
Name: FF Skagen A/S. IFFO105a. 12/04/2020. Triplenine A.S- Thyboron. IFFO104a. 22/09/2018. FF SkagenA/S- Hanstholm. IFFO105b. 26/10/2018.				
Address:				
Country: Denmark, Latvia		Zip:		
Tel. No.:		Fax. No.:		
Email address:		Applicant Code		
Key Contact:		Title:		
Certification Body Details				
Name of Certification Body:		SAI GLOBAL LTD		
Assessor Name	Pier Reviewer	Assessment Days	Initial/Surveillance/Re-approval	Whole fish/ By-product
Virginia Polonio	Jim Daly	3	Re-certification	Whole fish
Assessment Period		September 2017 - September 2018		

Scope Details	
Management Authority (Country/State)	Danish Agrifish Agency; Latvia National Board of Fisheries of the Ministry of Agriculture
Main Species	Sprat (<i>Sprattus sprattus</i>)
Fishery Location	Subdivisions 22-32, Baltic Sea (Denmark, Latvia)
Gear Type(s)	Primarily pelagic trawl, some demersal trawling
Outcome of Assessment	
Overall Outcome	PASS
Clauses Failed	NONE
Peer Review Evaluation	PASS
Recommendation	APPROVE

Assessment Determination
<p>Sprat is taken with a bycatch of herring to an extent that depends on season and area. Fishing options for sprat should take account of the state of herring stocks as they overlap in distribution and fishing area. EU vessels are no longer allowed land unsorted catches, unless there is a proper sampling scheme to monitor species composition. This is thought to have led to a reduction in the amount of misreported species. The most recent ICES advice on the sprat stock has not included discards or bycatch in their assessment as they are considered negligible.</p> <p>The fishery had been certified in 2016 with a condition which was closed in 2017; the condition being that the 2017 TAC should be set below ICES scientific advice. In 2017 the agreed TAC of 303,593t was set against ICES advice at the time of no more than 314,000t.</p> <p>The result of the latest ICES report (May 2018) has shown that the stock is in good condition. The spawning-stock biomass (SSB) is well above MSY Btrigger. The recent increase in SSB is attributable to a strong year class of 2014. The 2015 and 2016 year classes are estimated to be slightly below average, while the 2017 year class is estimated to be above average.</p> <p>Fishing mortality (F) has declined in recent years to just above FMSY. From 2019–2020 the stock is predicted to stay at recent levels of 1.3 million tonnes if exploited at FMSY. The EU component of the Baltic Sea sprat fishery is managed within the CFP framework and as such is subject to research, control and enforcement typical of European fisheries. Scientific understanding of the stock appears to be good, and ICES has made annual management and quota recommendations for nearly 30 years. However there is as yet no international agreement in place with regards to TAC - setting for this species in the Baltic.</p> <p>Although Sprat is present throughout the Baltic region, catches occur (2017 data) primarily in Subdivisions 26 (37%), 28 (21%), 25 (15%) and 29 (10%, ICES WGBFAS 2018). The EU landing obligation in 2015 began to cover small and large pelagic species, industrial fisheries and main fisheries (cod, salmon) in the Baltic. Discard data have not generally been available for inclusion in stock assessments, although efforts are underway to remedy this in future. In countries where Sprat is caught for human consumption there may be significant discarding. It is recommended that these data are sourced by ICES and added to future stock assessments.</p> <p>ICES is recommending that a spatial management plan for clupeid stocks in Subdivisions 25 & 26 be developed. This would consider prey availability for the recovery of cod in Subdivisions 25-26 and redistribution of the fishery in Subdivisions 27–32 to promote growth of cod's prey species (e.g. sprat,</p>

herring). The plan could establish restrictions on sprat catches in the main cod area and redistribution of the fishery to the northern areas (subdivisions 27–32). This may reduce the density-dependent effect and therefore increase growth for clupeids in the area.

Preliminary investigations indicate that stocks of Western Baltic spring-spawning herring and Central Baltic herring are mixing in Subdivisions 24–26 (**Figure 2**). This is not taken into account in the current assessment but should be investigated further. Species misreporting of herring has occurred in the past and there are again indications that it is a problem in some nations. For the herring stock in the Central Baltic assessments have generally shown an overall upwards revision in SSB and a downwards revision in fishing mortality (F).

Sprat (*Sprattus sprattus*) has not yet been assessed under the IUCN Red List; Herring (*Clupea harengus*) is listed on the IUCN website as a species of least concern; both species are currently not listed on the most recent CITES appendices of endangered and/or threatened species.

The assessment team recommends approving this fishery under IFFO RS (whole fish) Standard v 2.0 for fishmeal and/or fish oil production.

Peer Review Comments

Seal status is considered not good in most parts of the Baltic Sea according to HELCOM's integrated assessment and most recent report (2018). Fishing for sprat could be impacting seal and porpoise nutrition, but the magnitude compared with other factors is unknown. This issue should be reviewed during future assessments. It is noted that ICES (Stock Annex Reports) now provides integrated advice at the ecosystem level in support of a shift towards a more holistic approach to managing Europe's seas.

There is as yet no international agreement in place with regards to TAC - setting for this species in the Baltic. The assessor should note developments on this important issue during future assessments. It was noted that the Russian TAC of 42, 600t set for 2017 was 91% exhausted. In 2017 the TAC of 260, 993 t set for EU was 95% exhausted.

Discard data have not generally been available for inclusion in stock assessments, although efforts are underway to remedy this in future. These efforts are to be monitored in order to assess the efficacy of the landing obligation for EU vessels and the effect of known discard rates on stock assessments.

Notes for On-site Auditor

Note: This table should be completed for whole fish assessments only.

General Results

General Clause	Outcome (Pass/Fail)
M1 - Management Framework	PASS
M2 - Surveillance, Control and Enforcement	PASS
F1 - Impacts on ETP Species	PASS
F2 - Impacts on Habitats	PASS
F3 - Ecosystem Impacts	PASS

Species-Specific Results

Category	Species	% landings	Outcome (Pass/Fail)	
Category A	Sprat (<i>Sprattus sprattus</i>)	95	A1	PASS
			A2	PASS
			A3	PASS
			A4	PASS
Category B				
Category C	Herring (<i>Clupea harengus</i>)	5		
Category D				

[List all Category A and B species. List approximate total % age of landings which are Category C and D species; these do not need to be individually named here]

HOW TO COMPLETE THIS ASSESSMENT REPORT

This assessment template uses a modular approach to assessing fisheries against the IFFO RS standard.

Whole Fish

The process for completing the template for a **whole fish** assessment is as follows:

1. ALL ASSESSMENTS: Complete the Species Characterisation table, to determine which categories of species are present in the fishery.
2. ALL ASSESSMENTS: Complete clauses M1, M2, M3: Management.
3. IF THERE ARE CATEGORY A SPECIES IN THE FISHERY: Complete clauses A1, A2, A3, A4 for **each** Category A species.
4. IF THERE ARE CATEGORY B SPECIES IN THE FISHERY: Complete the Section B risk assessment for **each** Category B species.
5. IF THERE ARE CATEGORY C SPECIES IN THE FISHERY: Complete clause C1 for **each** Category C species.
6. IF THERE ARE CATEGORY D SPECIES IN THE FISHERY: Complete Section D.
7. ALL ASSESSMENTS: Complete clauses F1, F2, F3: Further Impacts.

A fishery must score a pass in **all applicable clauses** before approval may be recommended. To achieve a pass in a clause, the fishery/species must meet **all** of the minimum requirements.

By-products

The process for completing the template for **by-product raw material** is as follows:

1. ALL ASSESSMENTS: Complete the Species Characterisation table with the names of the by-product species and stocks under assessment. The ‘% landings’ column can be left empty; all by-products are considered as Category C and D.
2. IF THERE ARE CATEGORY C BYPRODUCTS UNDER ASSESSMENT: Complete clause C1 for **each** Category C by-product.

3. IF THERE ARE CATEGORY D BYPRODUCTS UNDER ASSESSMENT: Complete Section D.
4. ALL OTHER SECTIONS CAN BE DELETED. Clauses M1 - M3, F1 - F3, and Sections A and B do not need to be completed for a by-product assessment.

By-product approval is awarded on a species-by-species basis. Each by-product species scoring a pass under the appropriate section may be approved against the IFFO RS Standard.

SPECIES CATEGORISATION

The following table should be completed as fully as the available information permits. Any species representing more than 0.1% of the annual catch should be listed, along with an estimate of the proportion of the catch each species represents. The species should then be divided into Type 1 and Type 2 as follows:

- **Type 1 Species** can be considered the ‘target’ or ‘main’ species in the fishery. They make up the bulk of annual landings and are subjected to a detailed assessment.
- **Type 2 Species** can be considered the ‘bycatch’ or ‘minor’ species in the fishery. They make up a small proportion of the annual landings and are subjected to relatively high-level assessment.

Type 1 Species must represent 95% of the total annual catch. Type 2 Species may represent a maximum of 5% of the annual catch (see Appendix B).

Species which make up less than 0.1% of landings do not need to be listed (NOTE: ETP species are considered separately). The table should be extended if more space is needed. Discarded species should be included when known.

The ‘stock’ column should be used to differentiate when there are multiple biological or management stocks of one species captured by the fishery. The ‘management’ column should be used to indicate whether there is an adequate management regime specifically aimed at the individual species/stock. In some cases it will be immediately clear whether there is a species-specific management regime in place (for example, if there is an annual TAC). In less clear circumstances, the rule of thumb should be that if the species meets the minimum requirements of clauses A1-A4, an adequate species-specific management regime is in place.

NOTE: If any species is categorised as Endangered or Critically Endangered on the IUCN Red List, or if it appears in the CITES appendices, it **cannot** be approved for use as an IFFO RS raw material. This applied to whole fish as well as by-products.

TYPE 1 SPECIES (Representing 95% of the catch or more)

Category A: Species-specific management regime in place.

Category B: No species-specific management regime in place.

TYPE 2 SPECIES (Representing 5% OF THE CATCH OR LESS)

Category C: Species-specific management regime in place.

Category D: No species-specific management regime in place.

Common name	Latin name	Stock	% of landings	Management	Category
Sprat	<i>Sprattus sprattus</i>	Subdivisions 22-32, Baltic Sea	95	EU	A
Herring	<i>Clupea harengus</i>	Subdivisions 22-32, Baltic Sea	5	EU	C

MANAGEMENT

The two clauses in this section relate to the general management regime applied to the fishery under assessment. A fishery must meet all the minimum requirements in every clause before it can be recommended for approval.

M1	Management Framework – Minimum Requirements		
	M1.1	There is an organisation responsible for managing the fishery	PASS
	M1.2	There is an organisation responsible for collecting data and assessing the fishery	PASS
	M1.3	Fishery management organisations are publically committed to sustainability	PASS
	M1.4	Fishery management organisations are legally empowered to take management actions	PASS
	M1.5	There is a consultation process through which fishery stakeholders are engaged in decision-making	PASS
	M1.6	The decision-making process is transparent, with processes and results publically available	PASS
Clause outcome:			PASS
<p>Evidence</p> <p>M1.1:</p> <p>Denmark and Latvia are Member States of the European Union, and therefore in Community waters implement the Common Fisheries Policy (CFP). In force since 1983, the CFP aims to reconcile resource conservation with the preservation of income and jobs in coastal zones that offer few alternatives in terms of production or employment. It therefore covers not just resources but also markets and structures. With regard to resource management, the CFP regulations comprise:</p> <ul style="list-style-type: none"> • A traditional management tool based on TACs and quotas; • Technical measures relating to gear or catch; • Effort-related management, based on vessel engine power and the number of days at sea. <p>The CFP also provides for the introduction of measures to rebuild, over a period of several years, stocks that are threatened in terms of sustainable harvesting, and for recourse to effort-related management rules to supplement TACs and quotas.</p> <p>The CFP is periodically reviewed and reformed. The most recent CFP reform process was completed in 2013 and came into effect from the 1st January 2014. Key changes include:</p> <ul style="list-style-type: none"> • The introduction of an objective to ‘ensure high long-term fishing yields for all stocks by 2015 where possible, and at the latest by 2020’ (i.e. movement towards an MSY-based approach). • The gradual (2015-2019) introduction on a fishery-by-fishery basis of a ‘landing obligation’, which effectively bans discarding. • An overhaul of the management structure, including increased regionalisation and more extensive stakeholder consultation. <p>Baltic Sea Multi-annual Plan (2016):</p> <p>Regulation (EU) 2016/1139 established a multiannual plan for the stocks of cod, herring and sprat in the Baltic Sea and the fisheries exploiting those stocks. The plan defines ranges of fishing mortality levels on the basis of which the Council will define annual catch limits. In cases where a spawning stock would be at too low a level, safeguard measures must be taken and the level of fishing mortality reduced. The Commission is also empowered to adopt delegated acts for fisheries technical measures based on recommendations elaborated jointly at regional level by Member States concerned. A map of the Baltic Sea is provided in Figure 1:</p>			



Figure 1 Map of the Baltic Sea R11

Denmark:

The responsible authority for monitoring and enforcing EU and national conservation policies is the Danish Agrifish Agency, which is a part of the Ministry of Food, Agriculture and Fisheries, under the 1999 Fisheries Act. The Agency carries out inspection at sea and landings, as well as verification of EU marketing standards. The Ministry also works for Danish fisheries and aquaculture through:

- Regulation and inspections of the fishing industry
- Support for research in fisheries and aquaculture production
- Support for the development of fisheries, the fish industry, fishery harbours and aquaculture
- Fish management and fishing license arrangements for recreational fisheries

Latvia

The fisheries administration in Latvia is through the National Board of Fisheries of the Ministry of Agriculture, responsible for the overall management of the fisheries sector, quota management, sector development, strategies and legislation. The National Board of Fisheries deals with issues related to fisheries science and restocking of fish resources, fish processing and trading issues, and represents Latvian fisheries interests in the various EU institutions and international organizations (FAO, NAFO, etc.). State Environmental Service (SES), part of the Ministry of Environmental Protection and Regional Development, carries out fishing controls in marine waters under Latvian jurisdiction. An action plan was agreed with the EU in 2013 to address shortcomings in Latvia's national fisheries control system. "Fishing Law" (12.04.1995) sets the basis for fisheries legislation in Latvia and institutions responsible for fisheries management and control, as well as rules on fish resources management.

There is an organisation responsible for managing the fishery **R1-R6**

M1.2:

The primary provider of scientific information and advice at the national level within Denmark is the National Institute of Aquatic Resources at the Technical University of Denmark (DTU Aqua). DTU Aqua's stated mission is to conduct research, provide advice, educate at university level and contribute to innovation in sustainable exploitation and management of aquatic resources. DTU Aqua directly advises the Danish Ministry of Food, Agriculture and Fisheries and other public authorities.

International science:

Science-based fishery management advice at the international level is provided by the International Council for the Exploration of the Sea (ICES). ICES is a network of more than 1,600 scientists from 200 institutes (including DTU Aqua), linked by an intergovernmental agreement (the ICES Convention) to add value to national research efforts. Scientists working through ICES gather information about the marine ecosystem. Besides filling gaps in existing knowledge, this information is developed into unbiased, non-political fishery management advice. The 20 member countries that fund and support ICES use this advice to help them manage the North Atlantic Ocean and adjacent seas. ICES provides annual stock assessment and management advice in relation to the Baltic Sea sprat fishery via its Baltic Fisheries Assessment Working Group (WGBFAS).

Baltic Sea Advisory Council

Also relevant to the management of sprat in the Baltic Sea is the Baltic Sea Advisory Council (BSAC), which was set up in March 2006 as a result of the 2002 CFP reform. The role of Regional Advisory Councils (RACs) was further refined by the 2013 reform. The main objective of the BSAC is to provide advice on the management of Baltic fisheries, through its membership of representatives of the fishing industry and other non-governmental groups affected by the CFP, including eNGOs, consumers and others.

There is an organisation responsible for collecting data and assessing the fishery **R4; R7-R10**.

M1.3 -M1.4:

The CFP is the primary instrument for sustainable fisheries management. As such it addresses the impacts of fishing on target stocks as well as impacts on other ecosystem components. Implementing an (Ecosystem Approach to Fisheries Management) EAFM has been set as one of the objectives of the Common Fisheries Policy (Regulation(EU) No1380/2013):

“...to ensure that negative impacts of fishing activities on the marine ecosystem are minimized...” and “...that aquaculture and fisheries activities avoid the degradation of the marine environment.” (Article 2.3).

The CFP, specifically after the 2013 reform, presents some specific measures which should impulse the implementation of EAFM within European Fisheries. Among these measures are a) fishing at Maximum Sustainable Yield (MSY); b) avoid and reduce unwanted catches; and c) manage stocks by means of multi-annual plans. Specifically, for these plans, multiple stocks should be covered when those stocks are jointly exploited (1380/2013).

Denmark and Latvia are Member States of the European Union, and therefore in Community waters implement the Common Fisheries Policy (CFP). In force since 1983, the CFP aims to reconcile resource conservation with the preservation of income and jobs in coastal zones that offer few alternatives in terms of production or employment. It therefore covers not just resources but also markets and structures.

The Danish Agrifish Agency is part of the Ministry of Food, Agriculture and Fisheries, under the 1999 Fisheries Act. The Agency carries out inspection at sea and landings, as well as verification of EU marketing standards. The Ministry also works for Danish fisheries and aquaculture through fisheries management and fishing license arrangements for recreational fisheries.

In Latvia the National Board of Fisheries of the Ministry of Agriculture is responsible for the overall management of the fisheries sector, quota management, sector development, strategies and legislation.

Fishery management organisations are publically committed to sustainability; Fishery management organisations are legally empowered to take management actions **R1; R4-R6**

M1.5:

The main objective of the Baltic Sea Advisory Council (BSAC) is to provide advice on the management of Baltic fisheries, through its membership of representatives of the fishing industry and other non-governmental groups affected by the CFP, including eNGOs, consumers and others.

The EU receives scientific advice on EU fisheries from its Scientific, Technical and Economic Committee for Fisheries (STECF). STECF is composed of independent scientists and experts representing a broad range of opinion, and is systematically consulted before any proposals are drafted. On biological issues, STECF depends to a great extent on advice from ICES for the North-East Atlantic, North Sea and Baltic Sea. The advice provided by ICES includes the stock assessments and deeper analysis on which the Commission bases both its annual recommendations for setting TACs and quotas, and more long-term proposals on how fisheries in European waters can be managed sustainably. Increasingly ICES also provides a great deal of integrated advice at ecosystem level, in support of the shift towards a more holistic approach to managing Europe's seas.

There is a consultation process through which fishery stakeholders are engaged in decision-making **R7-R8**

M1.6:

Science-based fishery management advice at the international level is provided by the International Council for the Exploration of the Sea (ICES). ICES is a network of more than 1,600 scientists from 200 institutes (including DTU Aqua), linked by an intergovernmental agreement (the ICES Convention) to add value to national research efforts. Scientists working through ICES gather information about the marine ecosystem. ICES provides annual stock assessment and management advice in relation to the Baltic Sea sprat fishery via its Baltic Fisheries Assessment Working Group (WGBFAS). Results are published annually.

The decision-making process is transparent, with processes and results publically available **R3; R9-R10**

References

- R1:** EU Common Fisheries Policy overview: http://ec.europa.eu/fisheries/cfp/index_en.htm
R2: EU Common Fisheries Policy reform: http://ec.europa.eu/fisheries/reform/index_en.htm
R3: ICES, "Who we are": <http://www.ices.dk/explore-us/who-we-are/Pages/Who-we-are.aspx>
R4: DTU Aqua, "Mission, vision and tasks": http://www.aqua.dtu.dk/english/About/Mission_vision
R5: The Danish Agrifish Agency <http://agrifish.dk/about-us/>
R6: The State Environmental Service (SES), Ministry of Environmental Protection and Regional Development, Republic of Latvia <http://www.vvd.gov.lv/eng/about-us/>
R7: Baltic Sea Advisory Council, "about": <http://www.bsac.dk/ooizzCMS/DA/aboutthebsrac>
R8: STECF home page: <https://stecf.jrc.ec.europa.eu/>
R9: ICES Baltic sprat popular advice, May 2016: <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/spr-2232.pdf>
R10: BSAC recommendations for the fishery in the Baltic Sea in 2016, July 2015: http://www.bsac.dk/archive/Dokumenter/Recommendations/2015/BSAC_2015_4BSACRecommendationsFishery2016FINAL.pdf
R11: European Commission DG MARE: Fisheries Control Authorities in the Baltic Sea: https://ec.europa.eu/fisheries/cfp/control/who_does_what/baltic_sea_authorities_en

Standard clauses 1.3.1.1, 1.3.1.2

M2 Surveillance, Control and Enforcement - Minimum Requirements			
M2	M2.1	There is an organisation responsible for monitoring compliance with fishery laws and regulations	PASS
	M2.2	There is a framework of sanctions which are applied when laws and regulations are discovered to have been broken	PASS
	M2.3	There is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing	PASS
	M2.4	Compliance with laws and regulations is actively monitored, through a regime which may include at-sea and portside inspections, observer programmes, and VMS.	PASS
Clause outcome:			PASS

Evidence

M2.1-M2.2:

To ensure that fishing rules are applied in the same way in all member countries, and to harmonise the way infringements are sanctioned, the EU has established a list of serious infringements of the rules of the common fisheries policy. EU countries must include in their legislation effective, proportionate and dissuasive sanctions, and ensure that the rules are respected.

Since 1 January 2012, EU countries have been required to have a point system for serious infringements. Under the scheme, national authorities:

- assess alleged infringements involving vessels registered under its flag, using standard EU definitions;
- impose a pre-set number of penalty points on vessels involved in serious infringements (points are recorded in the national registry of fisheries offences);
- suspend the vessel's licence for 2, 4, 8 or 12 months when a pre-set number of points have been accumulated in a 3-year period.

The Danish Agrifish Agency is the competent authority with responsibility of enforcement of sanctions and penalties with respect to the prosecution of fishery rules.

State Environmental Service (SES), part of the Ministry of Environmental Protection and Regional Development, carries out fishing controls in marine waters under Latvian jurisdiction. An action plan was agreed with the EU in 2013 to address shortcomings in Latvia's national fisheries control system. Latvia has successfully implemented the plan and has undertaken further improvements beyond the plan. A Latvian Administrative Penalty Code exists and is applied for violations of fishing rules. Where repeated violation of fishing regulations occurs or fishing occurs without authorization fines range from 700€ up to 14,000€, gear can be confiscated and fishing licenses suspended for up to three years.

There is an organisation responsible for monitoring compliance with fishery laws and regulations There is a framework of sanctions which are applied when laws and regulations are discovered to have been broken **R5-R6; R12-R15**

M2.3:

In accordance with its mandate, the European Fisheries Control Agency (EFCA) assists Member States to fulfill their obligations by organising workshops and seminars for national administrations on the implementation of the IUU Regulation. Through EU Fishery Policy and Regulations, Member States must apply effective, proportionate and dissuasive sanctions against natural or legal persons engaged in IUU activities. A maximum sanction of at least five times the value of the fishery products obtained is provided for with regard to the committing of the said infringement.

There is no substantial evidence of widespread non-compliance in the fishery, and no substantial evidence of IUU fishing **R16**

M2.4:

In practice, CFP control as carried out by the Member States' control authorities can be broken down into three broad areas: conservation, structures, and markets:

- Conservation measures cover issues such as quota management or the implementation of technical measures (e.g. mesh sizes). Inspections are used to ensure that the fishing gear on board vessels meets official norms and that the information entered in log-books.

- Structural policy plays a key role in the search for a balance between the fishing capacity of Member States, the fishing effort actually deployed, and the available fish resources. Checks are therefore necessary to establish that allocated days-at-sea have not been exceeded.
- Finally, national inspections are not limited to the catching sector, but also include all operations from landing and marketing to storage and transportation. Operators must, at all times, be in possession of proper documentation detailing the origin, nature, quantity and quality of fish involved in transactions, so that it can be cross-checked with data in log-books and from other sources, such as fish auctions.

As with the application of sanctions, the bodies responsible for control and enforcement are set up by the individual EU states.

Compliance with laws and regulations is actively monitored, through a regime which may include at-sea and portside inspections, observer programmes, and VMS. **R12-R16**

References

R12 CFP control and enforcement overview: http://ec.europa.eu/fisheries/cfp/control/index_en.htm

R13 ICES 2018 Baltic Fisheries Assessment Working Group (WGBFAS) Sprat in the Baltic Sea: <http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2018/WGBFAS/09%20WGBFAS%20Report%202018%20-%202007%20Sprat%20in%20the%20Baltic%20Sea.pdf>

R14 European Commission DG MARE: Fisheries Control Authorities in the Baltic Sea:

https://ec.europa.eu/fisheries/cfp/control/who_does_what/baltic_sea_authorities_en

R15 The State Environmental Service (SES), Ministry of Environmental Protection and Regional Development, Republic of Latvia <http://www.vvd.gov.lv/eng/about-us/>

R16 EFCA about: http://efca.europa.eu/pages/home/about_objectives.htm

Standard clause 1.3.1.3

CATEGORY A SPECIES

The four clauses in this section apply to Category A species. Clauses A1 - A4 should be completed for **each** Category A species. If there are no Category A species in the fishery under assessment, this section can be deleted. A Category A species must meet the minimum requirements of all four clauses before it can be recommended for approval. If the species fails any of these clauses it should be re-assessed as a Category B species.

Species Name		SPRAT (<i>Sprattus sprattus</i>)	
A1	Data Collection - Minimum Requirements		
	A1.1	Landings data are collected such that the fishery-wide removals of this species are known.	YES
	A1.2	Sufficient additional information is collected to enable an indication of stock status to be estimated.	YES
Clause outcome:			PASS
Evidence			
A1.1:			
Although Sprat is present throughout the Baltic region, catches occur (2017 data) primarily in Subdivisions 26 (37%), 28 (21%), 25 (15%) and 29 (10%) (Figure 2). Management of the Sprat stock is supported by the collection of fishery-dependent and fishery-independent data, and by more general research on the ecosystems and species which affect the stock. ICES has provided scientific advice to managers of the stock since 1988, and every year since 1991.			
Commercial catch data have been collected for several decades, and total landings estimates are available for every year back to the early 1970s. The species composition of mixed catches is defined by logbooks and by			

observers on board the larger vessels, but the amount of discarding is currently unknown. Age and length frequencies are calculated based on measurements taken from the catch, and natural mortality rates are estimated based on Stochastic Multispecies Simulations and the estimated size of the Baltic cod stock.

The landings and sampling activity summary provided by ICES shows that the level of sampling activity by ICES subdivision exceeded the levels required by EC regulation (i.e. 1 sample per 2,000t of catch, 100 length measurements and 50 age readings per sample) in 2014. The availability of CPUE data appears to vary, with only Denmark and Lithuania providing fishing effort information for 2014 but not since.

Sprat in the Baltic Sea has been assessed as a single stock since 1992. Around this time scientific studies were conducted to determine stock structure but no evidence was found to suggest heterogeneity in ICES Subdivisions 22-32. Prior to 1992 sprat in the Baltic was considered to be composed of three stocks: in Subdivisions 22-25, 26 & 28, and 27, 29, 30, 31, 32.

Sprat catches in 2017 were 285, 701t, which is 16% more than in 2016 and 46% less than the record high value of 529, 400 t in 1997. In 2017 the TAC of 260, 993 t set for EU was 95% used. The largest increase in catches was observed for Denmark (42%), followed by Latvia and Germany (27 and 24%, respectively). Finnish catches decreased by 5% compared to 2016. The Russian TAC 42, 600 t set for 2017 was 91% used.

Landings data are collected such that the fishery-wide removals of this species are known. **R17**

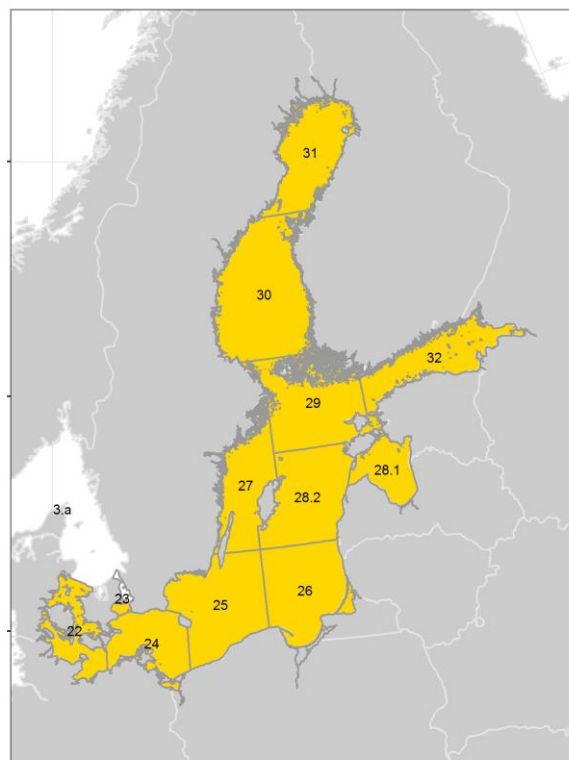


Figure 2 Geographical area covered by ICES advice (in yellow) **R 13**

A1.2:

The most recent benchmarking for Baltic sprat (carried out in 2013) utilised three acoustic survey time-series: BASS tuning fleet index for Baltic sprat in the SDs 24–26 and 28 for the years 2001 – 2011, BIAS tuning fleet index for Baltic sprat in the SDs 22–29 for the years 1991 – 2011, and BIAS tuning fleet index for Baltic sprat recruitment (age 0) in the SD 22-29 for the years 1991 – 2011. The 2017 stock assessment used commercial catches (international landings, ages and length frequencies from catch sampling); two acoustic surveys (BASS; BIAS); natural mortalities from the multispecies model (SMS) and regression of M against eastern Baltic cod SSB. ICES stock advice (2018) was published in May 2018.

Sufficient additional information is collected to enable an indication of stock status to be estimated **R13, R17**

References

R17 ICES Baltic sea sprat advice, May 2018:

<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/spr.27.22-32.pdf>

Standard clause 1.3.2.1.1

A2	Stock Assessment - Minimum Requirements		
	A2.1	A stock assessment is conducted at least once every 3 years (or every 5 years if there is substantial supporting information that this is sufficient for the long-term sustainable management of the stock), and considers all fishery removals and the biological characteristics of the species.	YES
	A2.2	The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy.	YES
	A2.3	The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status.	YES
	A2.4	The assessment is subject to internal or external peer review.	YES
	A2.5	The assessment is made publically available.	YES
Clause outcome:			PASS

Evidence

A2.1:

Discard data have not generally been available for inclusion in stock assessments, although efforts are underway to remedy this in future. Discards are estimated to be negligible in most countries, as undersized and lower quality fish can be used for fishmeal production. In countries where sprat is caught for human consumption there may be significant discarding. The amount of discarding of age-groups 0 and 1 in fisheries directed to human-consumption is unknown. It is expected that misreporting of catches occurs, as estimates of species composition of clupeid catches are imprecise in some mixed pelagic fisheries. This should be taken into account when assessing future sprat stocks. The assessment team note, however, that the most recent ICES advice on the stock has not included discards or bycatch in their assessment as they are considered negligible (**R13**, Table 6 p4).

ICES has provided scientific advice to managers of the stock since 1988, and every year since 1991 (**Figure 3**). The historical variations in the assessment are to some extent related to the revisions of predation mortalities from cod, used as input in the assessment model. Some underestimation of F is observed:

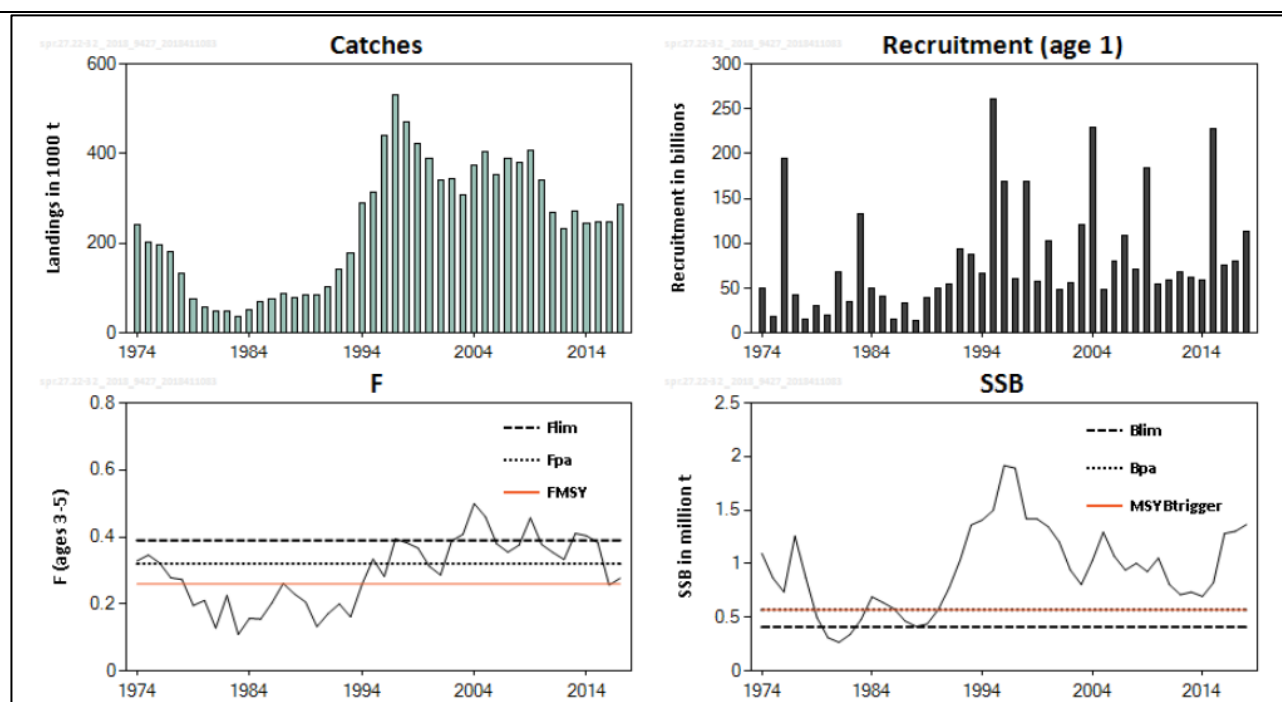


Figure 3 Sprat in subdivisions 22-32. Summary of the stock assessment.
SSB at spawning time in 2018 is predicted. Source: ICES advice 2018 **R17**

The predicted SSB for the year following the prediction year is very sensitive to the assumed (GM) year class strength. The assumed year classes contribute usually 40-55% to the predicted SSB, this year (2018) it is less (34%) as strong 2014 year class still markedly contributes to biomass and catches. The inputs to the assessments are catch-at-age data and age-structured stock estimates from the acoustic surveys. The survey estimates of stock numbers are internally consistent and the same applies to catch-at-age numbers. Survey are also consistent between themselves.

From ICES advice (May 2018) the assessment has showed the spawning-stock biomass (SSB) is well above MSY Btrigger. The recent increase in SSB is attributable to the strong year class of 2014. The 2015 and 2016 year classes are estimated slightly below average, while the 2017 year class is estimated to be above average. Fishing mortality (F) has declined in recent years to just above FMSY. Reference points have been defined for the stock based on the MSY and precautionary approaches (**Figure 3 and Table 1**).

FMSY ranges in the EU Baltic Sea MAP are consistent with ranges provided by ICES (2015) and were evaluated to result in no more than 5% reduction in long-term yield compared with MSY. ICES advice is considered precautionary. The ICES advice rule is used, i.e. F is adjusted by the SSB/MSY Btrigger when SSB is below MSY Btrigger. For sprat the SSB in 2019 is above MSY Btrigger. In this situation, catch scenarios applicable under the MAP correspond to fishing mortalities between F_{lower} and F_{upper} . However, according to the MAP, catches corresponding to F higher than FMSY can only be taken under conditions specified in the plan.

ICES advises that when the EU MAP is applied, catches in 2019 that correspond to F ranges in the plan are between 225, 752 tonnes and 311, 523 tonnes. According to the MAP, catches higher than those corresponding to FMSY (301,125 tonnes) can only be taken under conditions specified in the Plan, whilst the entire range is considered precautionary when applying the ICES advice rule.

A stock assessment is conducted at least once every 3 years **R13, R17**

A2.2:

The EU receives scientific advice on EU fisheries from its Scientific, Technical and Economic Committee for Fisheries (STECF). STECF is composed of independent scientists and experts representing a broad range of opinion, and is systematically consulted before any proposals are drafted. On biological issues, STECF depends to a great extent on advice from ICES for the North-East Atlantic, North Sea and Baltic Sea. The advice provided by ICES includes the stock assessments and deeper analysis on which the Commission bases both its annual recommendations for setting TACs and quotas, and more long-term proposals on how fisheries in European waters can be managed sustainably. Increasingly ICES also provides a great deal of integrated advice at ecosystem level, in support of the shift towards a more holistic approach to managing Europe's seas. ICES advice provides calculations of spawning-stock biomass (SSB) and MSY Btrigger, among other Biological Reference Points (BRP's).

A Multi-Annual Plan (MAP) is in place; no changes have been identified from last surveillance report. The EU CFP makes a broad commitment to the application of the precautionary approach, and ICES advice is provided largely on the same basis. Stocks are ordered into six main categories according to the level of scientific information available, from category 1 stocks where full quantitative assessments are possible, to categories 5 and 6 stocks which have little or no data beyond total landings. Advice for stocks in higher categories is more conservative and precautionary than for those in lower categories which are better understood. Where there is a change in the level of uncertainty in the understanding of a stock, this can result in a change in categorisation. Sprat is considered a Category 1 stock, with a full quantitative assessment conducted. Reference points have been defined for the stock based on the MSY and Precautionary approaches.

The spawning-stock biomass (SSB) is well above MSY Btrigger. The recent increase in SSB is attributable to the strong year class of 2014. The 2015 and 2016 year classes are estimated slightly below average, while the 2017 year class is estimated to be above average. Fishing mortality (F) has declined in recent years to just above FMSY. In 2019–2020 (**Table 1,2**) the stock is predicted to stay at recent levels of 1.3 million tonnes, if exploited at FMSY:

Table 1 Baltic Sea sprat – reference points and their technical basis. May 2018 ICES advice **R17**

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY Btrigger	570 000	Assumed at Bpa.	ICES (2015)
	FMSY	0.26	Stochastic simulations with segmented regression and Ricker stock–recruitment curves from the 1992–2013 time-series.	ICES (2015)
Precautionary approach	Blim	410 000	Stock–recruitment relationship (biomass which produces half of the maximal recruitment in a Beverton–Holt model).	ICES (2013)
	Bpa	570 000	Blim × 1.4.	ICES (2013)
	Flim	0.39	Consistent with Blim.	ICES (2013)
	Fpa	0.32	Consistent with Bpa.	ICES (2013)
Management plan	MAP MSY Btrigger	570 000	MSY Btrigger	Annex II column A in EU (2016)
	MAP Blim	410 000	Blim	Annex II column B in EU (2016)
	MAP FMSY	0.26	FMSY	Annex I columns A and B in EU (2016)
	MAP target range Flower–FMSY	0.19–0.26	Consistent with the ranges provided by ICES (2015), resulting in no more than 5% reduction in long-term yield compared with MSY.	ICES (2015), and Annex I column A in EU (2016)
	MAP target range FMSY–Fupper	0.26–0.27	Consistent with the ranges provided by ICES (2015), resulting in no more than 5% reduction in long-term yield compared with MSY.	ICES (2015), and Annex I column B in EU (2016)

The assessment provides an estimate of the status of the biological stock relative to a reference point or proxy **R13, R17-R18**.

A2.3:

The FMSY ranges in the EU Baltic Sea multiannual plan are consistent with ranges provided by ICES (2015); these were evaluated to result in no more than 5% reduction in long-term yield compared with MSY. ICES advice is considered precautionary. The ICES advice rule is used, i.e. F is adjusted by the SSB/MSY Btrigger when SSB is below MSY Btrigger.

For this stock, the SSB in 2019 is above MSY Btrigger. In this situation, catch scenarios applicable under the MAP correspond to fishing mortalities between F_{lower} and F_{upper} . However, according to the MAP, catches corresponding to F higher than FMSY can only be taken under conditions specified in the plan:

The assessment provides an indication of the volume of fishery removals which is appropriate for the current stock status **R17**

A2.4-A2.5:

Scientists working through ICES gather information about the marine ecosystem. Besides filling gaps in existing knowledge, this information is developed into unbiased, non-political fishery management advice. The 20 member countries that fund and support ICES use this advice to help them manage the North Atlantic Ocean and adjacent seas. ICES provides annual stock assessment and management advice in relation to the Baltic Sea sprat fishery via its Baltic Fisheries Assessment Working Group (WGBFAS). Results are published annually.

The main objective of the BSAC is to provide advice on the management of Baltic fisheries, through its membership of representatives of the fishing industry and other non-governmental groups affected by the CFP, including eNGOs, consumers and others. Consultation and minutes are made publicly available.

Assessments are subject to internal or external peer review and are made publically available on the ICES website. **R17-R20**

References

R18 Historical EU quotas: http://ec.europa.eu/fisheries/cfp/fishing_rules/tacs/index_en.htm

R19 EU 2018 TAC & Quota Regulation: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0120&from=en>

R20 ICES Baltic Sea Ecoregion - Fisheries overview
http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/Baltic_Sea_Ecoregion_Fisheries_Overview.pdf

Standard clause 1.3.2.2, 1.3.2.1.2, 1.3.2.1.4

A3 Harvest Strategy - Minimum Requirements			
A3	A3.1	There is a mechanism in place by which total fishing mortality of this species is restricted.	PASS
	A3.2	Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment. Where a specific quantity of removals is recommended, the actual removals may exceed this by up to 10% ONLY if the stock status is above the limit reference point or proxy.	PASS
	A3.3	Commercial fishery removals are prohibited when the stock has been estimated to be below the limit reference point or proxy (small quotas for research or non-target catch of the species in other fisheries are permissible).	PASS

Clause outcome:	PASS
<p>Evidence</p> <p>A 3.1-A 3.2:</p> <p>Historically, the Baltic sprat TAC was set considerably higher than the ICES advice. In recent years the severity of this over-setting has reduced, but persisted until 2017 when the TAC was set in line with scientific advice. Fishing mortality (F) has fluctuated between F_{MSY} and F_{lim} in recent years, and in 2015 was slightly above F_{MSY}. The TAC for 2018 was set at 304,900t slightly above the upper range of 301,722t recommended by ICES.</p> <p>Final landings are generally below the advice level due to the herring quota being filled in the joint component of the fishery. According to data uploaded to Inter Catch, sprat catches in 2017 were 285,701t: in 2017 the EU TAC (260,993 t) was 95% used. Finnish catches decreased by 5% compared to 2016 levels. The Russian TAC of 42,600t set for 2017 was 91% used. There is as yet no international agreement in place with regards to TAC settings for this species in the Baltic.</p> <p>Previously, BSAC had expressed concerns over the inconsistency in stock size estimates, with year-to-year changes in the retrospective analysis of more than 100,000t. This may, in part, also explain why the total landings in recent years have been lower than the ICES advice. BSAC suggests a number of potential reasons for this variability, including the extent and timing of the acoustic survey. BSAC final conclusions appear not to deviate substantially from ICES. Future TAC's will be set according to MAP rules (Table 2).</p> <p>The EU CFP includes provisions to limit, and historically reduce, total fishing capacity through a combination of subsidizing fishery exits and restricting new entries. The entry-exit regime, which applies to the majority of EU Member State vessels, is one of the main pillars of the European-wide fishing capacity management system. As a general rule, the capacity of the national fleets cannot increase with respect to its levels on 1 January 2003, for 'EU 15' Member States and on the accession date for Member States which acceded to the Community after 2003.</p> <p>Stock-specific capacity limitation is applied primarily through the annual sprat quota. As annual landings have repeatedly fallen below the TAC in recent years, it is clear that either there is insufficient fleet capacity to catch the quota, or the fishery is limited by other factors. It is likely that the fishery is limited by the herring quota, which is usually fully utilised. In either case, excess capacity is clearly not leading to excess fishing pressure in the Baltic sprat fishery at present.</p> <p>Since 1 January 2012, EU countries have been required to have a point system for serious infringements. Member States must apply effective, proportionate and dissuasive sanctions against natural or legal persons engaged in IUU activities. In Denmark the Agrifish Agency is the competent authority with responsibility of enforcement of sanctions and penalties with respect to the prosecution of fishery rules. State Environmental Service (SES), part of the Ministry of Environmental Protection and Regional Development, carries out fishing controls in marine waters under Latvian jurisdiction. CFP controls carried out by the Member States' control authorities can be broken down into three broad areas: conservation, structures, and markets</p> <p>There is a mechanism in place by which total fishing mortality of this species is restricted. Total fishery removals of this species do not regularly exceed the level indicated or stated in the stock assessment R13, R18-R20.</p>	

Table 2. Baltic Sea sprat, ICES advice, TAC and final landings ICES 2018 advice: **R17)**

Year	ICES advice	Catch corresponding to advice	Agreed TAC	ICES catch
1987	Catch could be increased in subdivisions 22, 24, and 25 <i>Status quo F</i> for subdivisions 27 and 29–32		117200	88200
1988	Catch could be increased in subdivisions 22–25	-	117200	80300
1989	Catch could be increased for subdivisions 26 and 28 <i>Status quo F</i> for subdivisions 27 and 29–32	72000	142000	85800
1990		72000	150000	85600
1991	TAC	150000	163000	103200
1992	<i>Status quo F</i>	143000	290000	142100
1993	Increase in yield by increasing F	-	415000	178100
1994	Increase in yield by increasing F	-	700000	288800
1995	TAC	205000	500000	312600
1996	Little gain in long-term yield at higher F	279000	550000	441000
1997	No advice	-	550000	529400
1998	<i>Status quo F</i>	343000	550000	470800
1999	Proposed F_{pa}	304000	467005	422600
2000	Proposed F_{pa}	192000	400000	389100
2001	Proposed F_{pa}	314000	355000	342200
2002	Proposed F_{pa}	369000	380000	343200
2003	Below proposed F_{pa} (TAC should be set on central Baltic herring considerations)	300000	310000	308300
2004	Below proposed F_{pa} (TAC should be set on central Baltic herring considerations)	474000	420000	373700
2005	TAC should be set on central Baltic herring considerations	< 614000	550000	405200
2006	Agreed management plan	439000	468000	352100
2007	< F_{pa}	< 477000	454000*	388900
2008	< F_{pa}	< 432000	454000*	380500
2009	< F_{pa}	< 291000	399000*	407100
2010	< F_{pa}	< 306000	380000*	341500
2011	< F_{pa}	< 242000	322700**	267900
2012	MSY transition scheme	< 242000	255100**	235000
2013	$F < F_{MSY}$	< 278000	278000**	272400
2014	MSY approach	< 247000	267900**	243800
2015	MSY approach	< 222000	240200**	247200
2016	MSY approach ($F = 0.26$)	≤ 205000	243000**	246500
2017	MSY approach ($F = 0.26$)	≤ 314000	303593**	285701
2018	MAP target F ranges: F_{lower} to F_{upper} ($F = 0.19–0.27$), but F higher than $F_{MSY} = 0.26$ only under conditions specified in MAP	219152–301722, but catch higher than 291715 only under conditions specified in MAP	304900**	
2019	MAP target F ranges: F_{lower} to F_{upper} ($F = 0.19–0.27$), but F higher than $F_{MSY} = 0.26$ only under conditions specified in MAP	225752–311523, but catch higher than 301125 only under conditions specified in MAP		

A 3.3:

Since 1982 the stock has never been estimated to be below the limit reference point or proxy. Controls are in place to cover issues such as quota management or the implementation of technical measures (e.g. mesh sizes) should the stock fail. **R13**

References

Standard clause 1.3.2.1.3

A4 Stock Status - Minimum Requirements		
A4.1	The stock is at or above the target reference point, OR IF NOT:	PASS
	The stock is above the limit reference point or proxy and there is evidence that a fall below the limit reference point would result in fishery closure OR IF NOT:	
	The stock is estimated to be below the limit reference point or proxy, but fishery removals are prohibited.	

Clause outcome:		PASS
Evidence		
<p>The stock is at or above the target reference point. The result of the latest ICES report (May 2018) has shown that the stock is in good condition. The spawning-stock biomass (SSB) is well above MSY Btrigger. The recent increase in SSB is attributable to a strong year class of 2014. The 2015 and 2016 year classes are estimated to be slightly below average, while the 2017 year class is estimated to be above average.</p> <p>Fishing mortality (F) has declined in recent years to just above FMSY. In 2019-2020 the stock is predicted to stay at recent levels of 1.3 million tonnes if exploited at FMSY. The EU component of the Baltic Sea sprat fishery is managed within the CFP framework and as such is subject to research, control and enforcement typical of European fisheries. Scientific understanding of the stock appears to be good, and ICES has made annual management and quota recommendations for nearly 30 years. However there is as yet no international agreement in place with regards to TAC - setting for this species in the Baltic.</p> <p>The stock is at or above the target reference point R13</p>		
References		
<i>Standard clause 1.3.2.1.4</i>		

CATEGORY C SPECIES

In a whole fish assessment, Category C species are those which make up less than 5% of landings, but which are subject to a species-specific management regime. In most cases this will be because they are a commercial target in a fishery other than the one under assessment. In a by-product assessment, Category C species are those which are subject to a species-specific management regime, and are usually targeted species in fisheries for human consumption.

Clause C1 should be completed for **each** Category C species. If there are no Category C species in the fishery under assessment, this section can be deleted. A Category C species does not meet the minimum requirements of clause C1 should be re-assessed as a Category D species.

Species Name		Herring <i>Clupea harengus</i>	
C1	Category C Stock Status - Minimum Requirements		
	C1.1	Fishery removals of the species in the fishery under assessment are included in the stock assessment process, OR are considered by scientific authorities to be negligible.	PASS
	C1.2	The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy), OR removals by the fishery under assessment are considered by scientific authorities to be negligible.	PASS
Clause outcome:			PASS
Evidence			
C 1.1:			
Annual stock assessments are carried out by ICES, and TACs set according to scientific advice. Discards are considered low and the by-catch of sprat and juvenile cod is unknown.			
Fishery-dependent and –independent data are collected for the stock, and a stock assessment is conducted annually by ICES. In general, the level of research appears to be sufficient for the informed management of the stock. Spawning-stock biomass (SSB) decreased until 2001 and then increased, and it has been above MSY Btrigger since 2007. Fishing mortality (F) increased until 2000 and then decreased, remaining below FMSY since 2004. Recruitment in 2015 is estimated to be the highest of the whole time-series (Table 3):			

Table 3. Central Baltic Herring – reference points and their technical basis (ICES 2017) **R21**

Basis	Total catch (2018)	F_{total} (2018)	SSB (2018)	SSB (2019)	% SSB change *	% Advice change **
ICES advice basis						
EU MAP [^] : F_{MSY}	267745	0.22	1283487	1113149	-13%	24%
EU MAP: F_{lower}	200236	0.160	1309914	1194895	-9%	-7%
EU MAP: F_{upper}	331510	0.28	1257629	1037734	-17%	53%
Other options						
ICES MSY approach: F_{MSY}	267745	0.22	1283487	1113149	-13%	24%
$F = 0$	0	0	1383265	1448388	5%	-100%
F_{pa}	457890	0.41	1203489	893608	-26%	112%
F_{lim}	553453	0.52	1159630	789549	-32%	156%
SSB (2019) = B_{lim}	924535	1.10	955800	429915	-55%	328%
SSB (2019) = B_{pa}	739660	0.77	1065542	599790	-44%	242%
SSB (2019) = $MSY B_{trigger}$	739660	0.77	1065195	599790	-44%	242%
$F = F_{2017}$	239413	0.195	1294692	1147220	-11%	11%
$F = MAP F_{MSY lower}$	200236	0.16	1309914	1194895	-9%	-7%
$F = MAP F_{MSY lower} + 0.01$	211757	0.17	1305469	1180807	-10%	-2%
$F = MAP F_{MSY lower} + 0.02$	223170	0.18	1301041	1166908	-10%	3%
$F = MAP F_{MSY lower} + 0.03$	234473	0.19	1296629	1153196	-11%	8%
$F = MAP F_{MSY lower} + 0.04$	245670	0.20	1292232	1139667	-12%	14%
$F = MAP F_{MSY lower} + 0.05$	256760	0.21	1287852	1126319	-13%	19%
$F = MAP F_{MSY lower} + 0.06$	267745	0.22	1283487	1113149	-13%	24%
$F = MAP F_{MSY lower} + 0.07$	278626	0.23	1279138	1100155	-14%	29%
$F = MAP F_{MSY lower} + 0.08$	289405	0.24	1274805	1087334	-15%	34%
$F = MAP F_{MSY lower} + 0.09$	300081	0.25	1270488	1074684	-15%	39%
$F = MAP F_{MSY lower} + 0.10$	310657	0.26	1266186	1062202	-16%	44%
$F = MAP F_{MSY lower} + 0.11$	321133	0.27	1261900	1049886	-17%	49%
$F = MAP F_{MSY upper}$	331510	0.28	1257629	1037734	-17%	53%

* SSB 2019 relative to SSB 2018.

** Catch in 2018 relative to Advice for 2017 (216 000 t).

[^] MAP multiannual plan (EU, 2016).

Fishery removals of the species in the fishery under assessment are included in the stock assessment process **R21**

C 1.2:

Preliminary investigations indicate that Stocks of western Baltic spring-spawning herring and central Baltic herring are mixing in Subdivisions 24-26. This is not taken into account in the current assessment but should be investigated further. Species misreporting of herring has occurred in the past and there are again indications that it is a problem in some nations.

Historical assessments have generally shown an overall upwards revision in SSB and a downwards revision in fishing mortality (**Figure 4**):

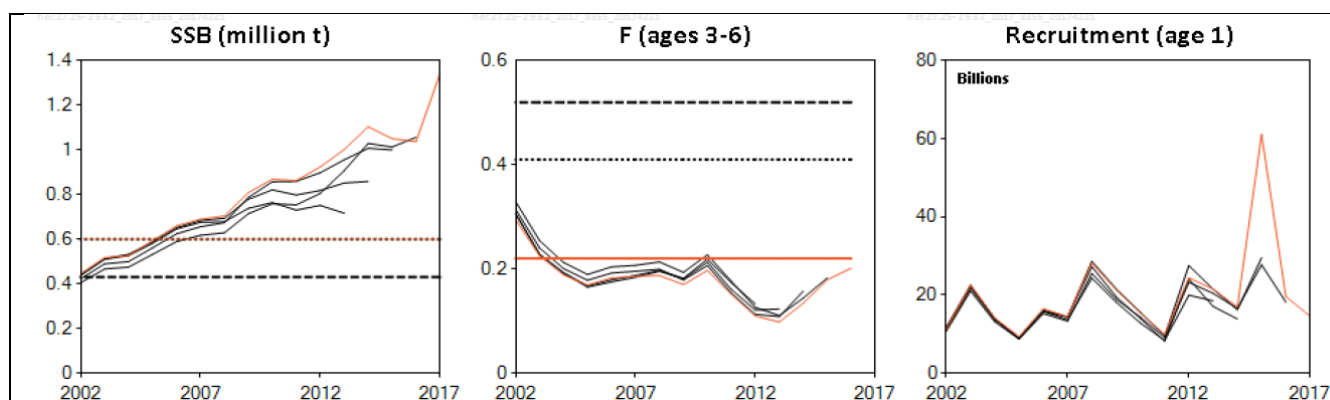


Figure 4 Herring in subdivisions 25–29 and 32, excluding the Gulf of Riga.
Historical assessment results (final-year recruitment estimates included).

The species is considered, in its most recent stock assessment, to have a biomass above the limit reference point (or proxy) **R21-R22**

References

R21 ICES advice (2017) Herring (*Clupea harengus*) Subdivisions 25–29 and 32 (central Baltic Sea, excluding Gulf of Riga) <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/her.27.25-2932.pdf>

R22 Stock Annex: Herring (*Clupea harengus*) in subdivisions 25–29 and 32 (central Baltic Sea, excluding the Gulf of Riga http://ices.dk/sites/pub/Publication%20Reports/Stock%20Annexes/2016/her-2532-gor_SA.pdf

Standard clauses 1.3.2.2

FURTHER IMPACTS

The three clauses in this section relate to impacts the fishery may have in other areas. A fishery must meet the minimum requirements of all three clauses before it can be recommended for approval.

F1 Impacts on ETP Species - Minimum Requirements		
F1.1	Interactions with ETP species are recorded.	PASS
F1.2	There is no substantial evidence that the fishery has a significant negative effect on ETP species.	PASS
F1.3	If the fishery is known to interact with ETP species, measures are in place to minimise mortality.	PASS
Clause outcome:		PASS
Evidence: F1.1-F1.3: According to Dagys et al. (2009), pelagic trawlers or seine do not cause any bycatch of birds or mammals in the offshore fishery in the Baltic Sea. Gillnetters, especially the smaller ones that usually operate closer to the shore occasionally can have large numbers of birds in the nets. Other studies have shown that fishing nets, in particular set nets, have caused considerable mortality for long-tailed ducks; velvet scoters common eiders and others. At least four species of marine mammals can be found in the Baltic Sea: Grey seal; Harbour seal; Ringed seal and a small population of Harbour porpoise. HELCOM agreed in 2006 on a Recommendation of the ‘Conservation of seals in the Baltic Sea’; a regional agreement on joint management principles, management		

units for the different seal populations, limit reference levels for the respective management unit, and coordinated monitoring programmes.

Seal status is considered not good in most parts of the Baltic Sea according to HELCOM's integrated assessment. Fishing for herring and/or sprat could be impacting seal and porpoise nutrition, but the magnitude compared with other factors is unknown.

Reports suggest that fisheries bycatch amount to 0.5-0.8% of the porpoise population in the southwestern part of the Baltic Marine Area each year, and 1.2% of the porpoise population in the Kiel and Mecklenburg Bays and inner Danish waters. Estimates of the Harbour porpoise population are uncertain, however, and the number of porpoises incidentally caught in fisheries is probably underestimated. The loss of porpoises to fishery in the Baltic Marine Area may be too high to sustain the population. Reliable data concerning sprat fisheries-related losses of Harbour porpoises are not available.

The Baltic is an important overwintering ground for seabirds and sea ducks and nine of nineteen species breeding in the area are decreasing in numbers, while the status of many of the rest is uncertain. Ecosystem changes have impacted on the breeding success of the common guillemot whereas bycatch in fishing gear, particularly set nets, has impacted on the numbers of long-tailed ducks, velvet scoters and others.

Further information available on these indicators, monitoring undertaken to date and assessment of ETP species status is available in HELCOM's State of the Baltic Report was updated in 2018 and is available at <http://stateofthebalticsea.helcom.fi/biodiversity-and-its-status/>

There is no substantial evidence that the fishery has a significant negative effect on ETP species **R23-R25**

References

R23 HELCOM, 2018. State of the Baltic Sea –Second HELCOM holistic assessment 2011-2016. <http://stateofthebalticsea.helcom.fi/>

R24 Fishsource Baltic Sea European Sprat https://www.fishsource.org/stock_page/1833

R25 Dagys M et al (2009) Action C1 – Assessing and reducing impact of fishery by-catch on species of community interest. Final report. LIFE Nature project “Marine Protected Areas in the Eastern Baltic Sea” Reference number: LIFE 05 NAT/LV/000100.

48pp http://www.balticseaportal.net/media/upload/File/Deliverables/Action%20reports/C1_final_report.pdf

Standard clause 1.3.3.1

F2	Impacts on Habitats - Minimum Requirements		
	F2.1	Potential habitat interactions are considered in the management decision-making process.	PASS
	F2.2	There is no substantial evidence that the fishery has a significant negative impact on physical habitats.	PASS
	F2.3	If the fishery is known to interact with physical habitats, there are measures in place to minimise and mitigate negative impacts.	PASS
Clause outcome:			PASS

Evidence

F2.1-F2.3:

Pelagic trawling is generally considered to have virtually no impact on the benthic environment, although some interactions have been reported. The sprat fisheries for industrial purposes generally use pelagic or light bottom trawl and thus habitat impacts are low. In addition, there are demersal trawling activities for sprat in some parts of the Baltic. Sprat fishing is carried out all year round with the main fishing season in the first half of the year. The major sprat landings come from Subdivisions 25-29 (open sea, **Figure 2**).

The topography of the Baltic seafloor is diverse, with around 30% of its area composed by shallow areas (< 25m), interspersed by a number of deeper basins. Benthic communities of hard substrates are dominated by mussels, while burrowing forms dominate on soft bottoms. Some coastal areas are also colonized by seaweeds and seagrasses, which serve as important nursery grounds for fish species. There are no records of significant impacts of fishing activities on benthos in the Baltic Sea, although the negative impacts of bottom trawling on the sessile benthic fauna of hard substrates has been demonstrated.

Patterns of seabed habitat disturbance largely reflect the distribution of bottom-trawl fishing effort. A large and, for some species, probably unsustainable bycatch of seabirds occurs at times in the gillnet fisheries; these fisheries also catch individuals of the critically endangered Central Baltic population of harbour porpoise.

Potential habitat interactions are considered in the management decision-making process **R24-R26**

References

R26 ICES, 2010b. Report of the Baltic Fisheries Assessment Working Group (WGBFAS), 15 - 22 April 2010, ICES Headquarters, Copenhagen (ICES CM 2010/ACOM:10). 633
<http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2010/WGBFAS/WGBFAS%202010.pdf>

Standard clause 1.3.3.2

F3 Ecosystem Impacts - Minimum Requirements		
F3.1	The broader ecosystem within which the fishery occurs is considered during the management decision-making process.	PASS
F3.2	There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem.	PASS
F3.3	If one or more of the species identified during species categorisation plays a key role in the marine ecosystem, additional precaution is included in recommendations relating to the total permissible fishery removals.	PASS
Clause outcome:		PASS

Evidence

F3.1-F3.3:

The ICES WGBFAS stock annex (2018) for herring includes a section examining the ecosystem components of fishery management. This section primarily considers the effects of the ecosystem on fish populations, in particular environmental influences on spawning and recruitment, and the impact of cod predation on natural mortality rates of herring and sprat.

Information on the impacts of sprat removals on the ecosystem appears to be limited, although the MAP notes that there are some indications that interactions between cod, herring and sprat may indicate that higher fishing pressures than currently advised may be sustainable in some areas (although ICES also notes that STECF have advised that more research be conducted). The MAP also includes a number of other commitments to follow the ecosystem approach to fisheries management.

In the Baltic, multispecies analyses indicate that trade-offs exist between fishing on cod or herring and sprat. Increased fishing pressure on cod may increase the risk of a low cod stock size, thereby reducing cod predation on sprat and herring and allowing great survival and growth of these two prey species. Increased fishing pressure on herring and sprat may have a negative impact on the condition and growth of cod (by reducing the forage available for cod) and result in lower cod yields. The magnitude of the interaction between the species depends on the spatial and temporal overlap among the three stocks (**Figure 5**).

Restrictions on sprat catches taken in the main cod area could be established as part of an ICES proposed spatial management plan (SMP). Redistribution of the fishery to northern areas (subdivisions 27–32) may also reduce the density-dependent effect i.e. increase growth for the clupeids in the area:

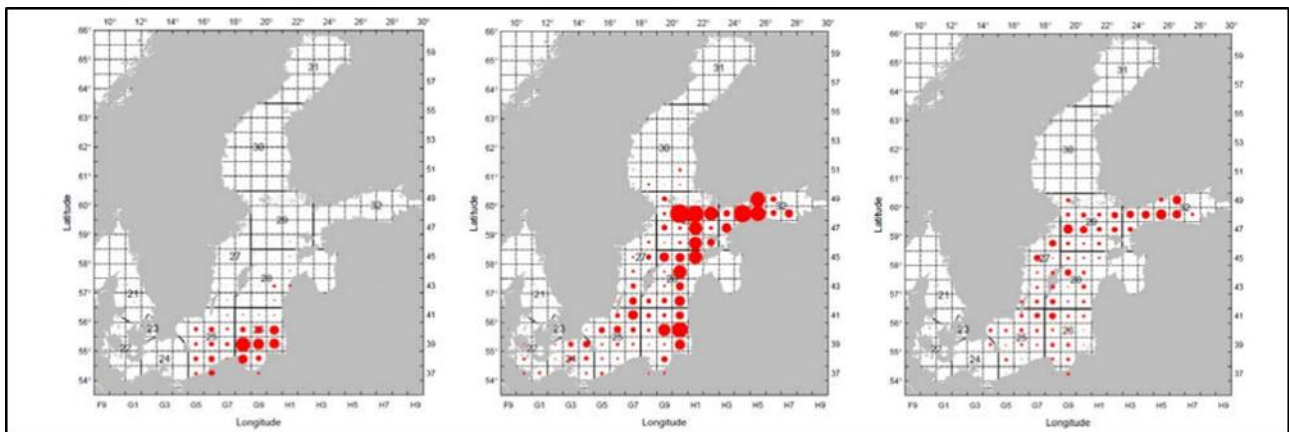


Figure 5 Sprat in subdivisions 22–32. Left panel: Distribution of eastern Baltic Sea cod from the bottom trawl survey (BITS, in number h–1) in the 4th quarter 2017; middle panel: Baltic sprat from the acoustic survey (BIAS, numbers) in the 4th quarter 2017; and right panel: Herring in subdivisions 25–29 and 32, excluding the Gulf of Riga, from the BIAS survey (BIAS, numbers) in the 4th quarter 2017. The cod panel includes fish ≥ 30 cm, while herring and sprat panels include ages between 1 and 8. Figures are based on number of individuals; not on biomass. **R13**

If one or more of the species identified during species categorisation plays a key role in the marine ecosystem, additional precaution is included in recommendations relating to the total permissible fishery removals **R13, R27-28**

References

R27 Stock Annex: Herring (*Clupea harengus*) in subdivisions 25–29 and 32 (central Baltic Sea, excluding the Gulf of Riga http://ices.dk/sites/pub/Publication%20Reports/Stock%20Annexes/2016/her-2532-gor_SA.pdf

R28 REGULATION (EU) 2016/1139 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 July 2016 establishing a multiannual plan for the stocks of cod, herring and sprat in the Baltic Sea and the fisheries exploiting those stocks, amending Council Regulation (EC) No 2187/2005 and repealing Council Regulation (EC) No 1098/2007 <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R1139&from=EN>

Standard clause 1.3.3.3