

**Annex I: Comments and recommendations for Member States on the
Commission proposal for a *Council Regulation fixing for 2018 the fishing
opportunities for certain fish stocks and groups of fish stocks applicable in
the Baltic Sea***

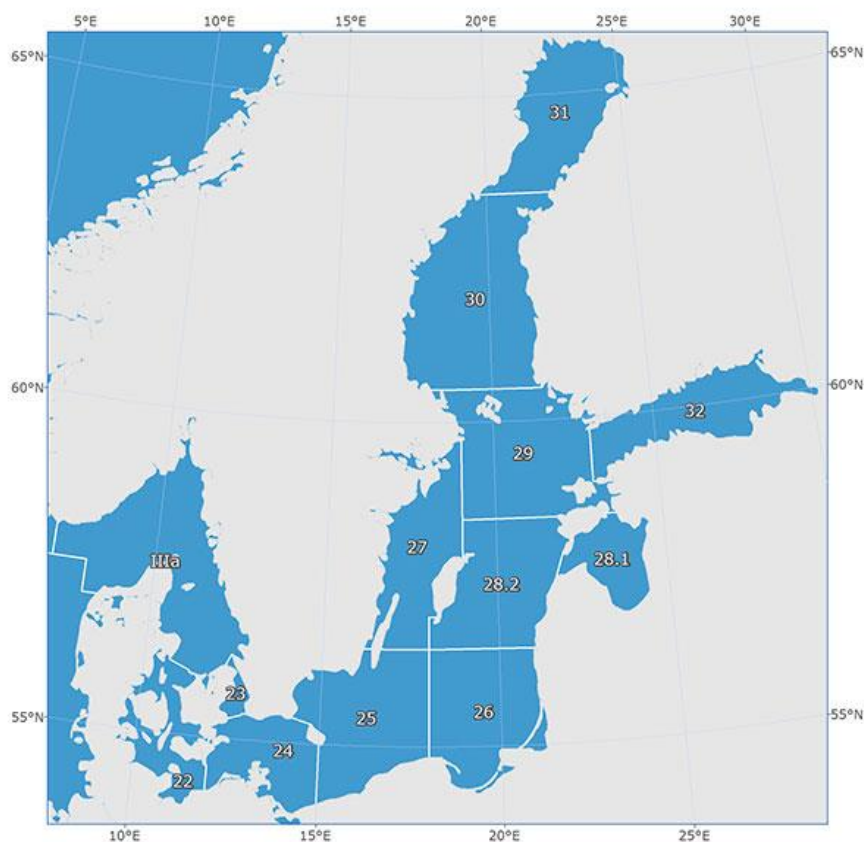
COM (2017) 461

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We welcome the Commission proposal and highlight the development to prohibit the fishing of eel (see Annex II). The proposals are largely in line with both scientific advice and international and EU commitments to the sustainable management of fisheries resources.

We provide our recommendations to the Council for the setting of fishing opportunities in 2018 based on the latest advice from the International Council for the Exploration of the Sea (ICES).¹

Map of the Baltic Sea showing management subdivisions²



¹ Full ICES advice is available at <http://www.ices.dk/publications/library/Pages/default.aspx>

² FAO. 2016. [FAO major fishing areas] <http://www.fao.org/fishery/area/Area27/en>

Table showing our TAC recommendations and the Commission proposal

Stock and management area	Commission proposal	2017 TAC	SARFISH recommendation
Cod, Western Baltic, 22–24	5 597*	5 597	1 376
Cod, Eastern Baltic, 25–32	22 275*	30 857	24 767
Herring, Western Baltic Spring Spawners, 22–24	12 987	28 401	17 309
Herring, Central Baltic, 25–29 & 32	238 229	191 129	177 521–238 229
Herring, Gulf of Riga, 28.1	28 999	31 074	23 476–28 999
Herring, Gulf of Bothnia, 30–31	70 617	140 998	70 617–95 566
Sprat, Baltic, 22–32	262 310	260 993	197 061–262 310
Plaice, Baltic, 22–32	6 272	7 862	6 272
Salmon, Baltic, 22–31 (<i>individual fish</i>)	106 096	95 928	78 400**
Salmon, Gulf of Finland, 32 (<i>individual wild/ reared fish</i>)	10 003	10 485	9 558***

* Commission proposal assumes a quota transfer from the Eastern cod TAC to the western TAC

**ICES advice after deducting unreported, misreported and discarded catch

***All catches should be reared fish only, with zero catches of wild salmon

Detailed Summary of Recommendations for Baltic Fishing Opportunities

COD

For Baltic cod stocks, the situation remains at best uncertain. Biomass is low, recruitment at risk of impairment, and fishing mortality has been set above scientific recommendations for most of the past decade.

Since 2004, the Baltic Sea cod (*Gadus morhua*) has been managed as two separate stocks, Eastern and the Western. Although biologically distinct, significant mixing of the Eastern and Western stocks in SD 24 has challenged ICES to refine their advice.

Of serious concern is the current lack of effective monitoring and limited proof of compliance with the landing obligation. Action is urgently required to improve data collection, curb unreported discarding and improve selectivity in the fisheries already under the landing obligation, particularly in the fisheries for Baltic cod.

Cod in Subdivisions 22–24, Western Baltic

Western Baltic cod is severely overfished. The SSB peaked in the early 1980s and reached a record low in 2013. The short-term forecast estimates that the SSB in 2017 is the second-lowest in the time series. Overall fishing mortality is, and has consistently been, well above F_{MSY} , F_{pa} , and is currently fluctuating around F_{lim} .

The most recent stock assessment has again revised the SSB downward and the fishing mortality rate upward. This stock has not grown as expected in the previous assessment, and the SSB has remained below B_{lim} , outside of safe biological limits and near collapse, for nearly a decade. Recruitment to the fishable stock in 2016 was the lowest in the 1994–present time series, though recruitment in 2017 is relatively one of the highest, although highly uncertain.

The projected growth for 2018 noted in the advice depends both on the recruitment in 2017, which is still uncertain and based on a few data points, as well as an assumption that the fishing exploitation rate on the stock, from all sources, will be 0.37 for 2017. This is very likely an underestimate of the true fishing mortality. Reasons include uncertainty from unaccounted fishing mortality and to a lesser extent stock mixing with eastern Baltic cod.³ In addition, the model used has repeatedly and consistently revised the biomass downward and the fishing exploitation rate upward, for several years. ICES sees this as a matter of concern and is now investigating possible underlying reasons.

Unless the cut in quota for 2017 is strictly applied across all commercial fisheries, the fishing exploitation rate for 2017 will likely remain at a similar level to that historically recorded. Significant changes in the fisheries capturing this stock are necessary to curb the long-term sources of mortality, including a commitment by Member States to implement existing regulations, in particular Article 17 of the CFP and quota being increasingly reallocated to passive gear and low impact fishers. Caution is necessary for all further exploitation of this stock to ensure that the recruitment in 2017 has the opportunity to help repopulate the stock.

³ WGBFAS 2017, p.500

An additional indicator of poor stock status is age-truncation, a reduction in the age when fish become mature.⁴ The proportion mature at age 2 in 1994 was 35%. The most recent estimate for 2016 is more than twice that proportion, with 71% mature at age 2.⁵ Similar to data from the eastern Baltic cod stock showing fish maturing at smaller sizes, this age-truncation is a result of overfishing over the long term, including larger, more fecund ‘mother’ cod selected out through relatively unselective mobile fishing methods. However, integrating stock data from SD 24 into the assessment may change this outlook.

Mixing between western and eastern Baltic cod in SD 24 complicates quota setting for the Management Area (SD 22–24). Reallocating a portion of the TAC for eastern Baltic cod to SD 24 would account for this naturally occurring stock mixing, but introduces an additional risk to overfishing western Baltic cod. ICES therefore highlights the need to protect the weaker western Baltic cod stock when considering any such reallocation.

Incorporating recreational catches in the stock assessment has added additional uncertainties to the advice. Only German recreational fishery data are included, as data on Danish and Swedish recreational fisheries is still too uncertain to include in the assessment. Recreational catches are generally not restricted through Council decisions on fishing opportunities. For 2018, ICES has deducted the estimated recreational catch first to arrive at advice specific to commercial catch only. The Commission proposes to continue with the bag limits imposed on recreational fishers in the area that were first introduced this year.

Contrary to anecdotal discussion, ICES data on German recreational fisheries shows that the vast majority of the recreational catch (86%) consists of cod age 3 and younger, and not a proportionally high number of older, larger cod.

The landing obligation became effective in the Baltic in 2015, but according to ICES, discarding still occurs. Experts in the field and fishers both agree that the ICES estimate of discarding is an underestimate due to non-compliance. ICES has also noted that discarding will increase as fishers capture the new larger year class, if the status quo is maintained.

We welcome that more gear flexibility will be permissible for the Baltic trawl fleet from next year, after the Baltic Sea Advisory Council unanimously advised in 2015 that the “Bacoma” and “T90” regulated cod-ends to fishing trawls have been ineffective. It is now of the utmost importance for increased controls to ensure compliance with the landing obligation.

The commercial catch advice range for western Baltic cod, based on the Baltic MAP, ranges from 1 376 tonnes to 3 541 tonnes. This catch advice is a portion of the total catch represented in ICES advice, which is no more than 5 295 tonnes. To arrive at the total commercial catch advice, ICES deducted an estimated 1 754 tonnes of recreational catch.

Due to the increased abundance of eastern cod in SD 24 which is part of the western Baltic management area (SD 22-24), discussions took place to transfer quota from the eastern to

⁴ Marteinsdottir G, & Begg G.A. 2002. Essential relationships incorporating the influence of age, size and condition on variables required for estimation of reproductive potential in Atlantic cod *Gadus morhua*. Marine Ecology Progress Series, 235: 235–256.

⁵ ICES. 2017. Report of the Baltic Fisheries Assessment Working Group (WGBFAS), 19–26 April, 2017, ICES HQ, Copenhagen, Denmark. ICES CM 2017/ACOM:11. 503pp.

the western TAC. When quotas were set by the Council for 2017, this transfer took place with the result that both cod stocks were overfished with quotas set above F_{MSY} .

Accounting for the ratio of eastern Baltic cod in SD 24, the '*status quo*' allocation within the adjusted F-ranges in the Baltic MAP could include from 981 tonnes to 2 525 tonnes of additional quota, with the Eastern Baltic Management Area quota reduced by the same amount. This would result in a potential range for the Western Baltic Management Area quota of 2 357 to 6 066 tonnes.

The Fisheries Secretariat and Seas At Risk do not support this quota reallocation. Firstly, the quota transfer increases the risk of overfishing of the western cod stock. While there is evidence that in SD 24 on average 2.3 eastern cod specimen are caught for every one western cod, there is no requirement to fish the quota in this subdivision. Given that the stock biomass of western cod is below the lowest reference point, that recruitment has been very low for the past 10 years with the likely exception of 2017, and that most fishing takes place during the spring spawning season, such a quota transfer does not adhere to the precautionary principle. Risks should be avoided and ICES has noted that SD 22 is the weakest component of the stock.

Secondly, such a quota transfer would disenfranchise Member States' fishing industries that hold eastern but not western cod quota. As such, these reallocation proposals were voted against by the Latvian Fisheries Association at the Baltic Sea Advisory Council.

Member States have the possibility to make quota swaps with one another. It is the simplest and most reasonable approach for the eastern cod quota to cover eastern cod, while the western quota covers western cod. Quota can then be swapped between Member States to reflect changes in distribution.

Recommendation: We call on Ministers to set the commercial catch of western Baltic cod to no more than 1 376 tonnes. The TAC corresponds to the ICES advice, F_{lower} , which is appropriate because of the fragile state of the stock and high levels of uncertainty regarding recruitment and biomass estimates. In addition, we recommend that Ministers maintain the eight week spawning season closure as an additional remedial measure, in line with Article 5.3 of the Baltic MAP.

If the TAC for SD 24 is adjusted upward to account for Eastern cod caught in that area, separate sub-TACs should be allocated and managed for areas SD 22-23 and SD 24. This would lead to a quota of 2357 tonnes of which 981 tonnes would be deducted from the eastern Baltic cod TAC.

We urge Member States to apply Article 17 of the CFP when distributing quota to their fishermen in 2017 to prioritise fishing opportunities for low impact fisheries.

Moreover, given the evident mismatch between capacity and available resources, highlighted by the socioeconomic difficulties of setting the TAC in line with scientific advice, we call on Ministers to apply Article 22 of the Basic Regulation and adjust fishing capacity accordingly.

Cod in Subdivisions 25–32, Eastern Baltic

There are serious concerns regarding the health of this stock. At present, the length at which eastern Baltic cod first mature has decreased from almost 40 cm in the early 1990s to 20cm in 2016-2017. Moreover, the ICES small fish index shows a steady decline in the amount of small fish in the stock, which may indicate a fall in recruitment.

Combining these two elements, a decline in the number of small fish as well as fish maturing at smaller sizes leads us to conclude that the stock is in an unhealthy state and more should be done to aid its recovery.

There are also very significant catches of undersized fish (as high as 45% of the catch)⁶. This is despite the lowering of the MCRS from 38 to 35cm, and it is of great concern that illegal discarding has become so widespread.

The prey populations (sprat and herring) have been booming but sprat fishing is still concentrated in areas where cod condition is poorest despite repeated calls for spatial management of sprat to be implemented and fishing to be diverted away from SD 25.⁷ Furthermore, the entire eastern cod TAC hasn't been fished up in recent years, and there is only one spawning site where there used to be three. This is in addition to the problems of eutrophication and expanding dead zones with no oxygen.

Despite all these red flags, Ministers have still set the TAC above scientific advice for the past two years.

There are too many warning signs for decision-makers not to use all the tools available to do their utmost for the stock to recover. Fully implementing and controlling the landing obligation, setting quotas below Fmsy and implementing ecosystem based spatial management of the sprat stock are all measures that should improve the condition of the stock.

Now that new trawl gears are available for use in the cod fisheries next year we expect the landing obligation to be fully enforced. Not only has discarding of juvenile cod been high⁶, but for plaice, which it is caught together with cod, discards have been 100% in some parts of the fishery.⁸

Due to favourable environmental conditions and strong year classes towards the end of the 1970s, the eastern Baltic cod stock reached its highest recorded biomass levels in 1980–1982. From an early 1980s high of approximately 640 000 tonnes, high fishing mortality and poor environmental conditions contributed to a stock decline to only 87 000 tonnes by 1992. Fishing mortality remained high on this diminished stock through the 2000s. The Helsinki Commission and the International Union for Conservation of Nature eventually classified

⁶ EFCA presentation at Baltfish meeting, Hamburg 9 March

⁷ *ICES Journal of Marine Science*, Volume 69, Issue 4, 1 May 2012, Pages 516–528

⁸ WGBFAS 2017 report, p.358

<https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2017/WGBFAS/01%20WGBFAS%20Report%202017.pdf>

eastern Baltic cod as “vulnerable” due to the threat of synergistic effects of eutrophication and climate change.⁹

Following the 2015 ICES benchmarking exercise, ICES determined that eastern Baltic cod is data-limited and it could not complete an analytical assessment. Key issues in the analytical assessment include the failure to confidently age cod, or quantify changes in cod growth and natural mortality. These issues, among others, increase uncertainty to such a degree that an analytical assessment is not meaningful and thus there are no available reference points for biomass and fishing mortality for the stock.

In the new advice for 2018 ICES has applied a model for data limited stocks using proxies for MSY reference points, and believes the stock biomass to be above B_{trigger} by 7% and fishing mortality above F_{MSY} by 153%.¹⁰

Additional data on the stock, such as the small fish index and length at maturity, are useful to understand stock status. In particular for considering fisheries-relevant components of the Marine Strategies Framework Directive, descriptor 3 in Annex I, that a fished population exhibit “a population age and size distribution that is indicative of a healthy stock.”¹¹

In 2014 and 2015 the Baltic experienced several significant inflows of oxygen-rich sea water, ending a decade-long stagnation in the central Baltic.¹² While the inflow appears to have impacted cod condition positively, this improvement is still well below the longer term average. Previous expectations that the inflow would benefit cod productivity and recruitment have not yet materialized. In fact, the length at which juveniles reach sexual maturity (L50) in this stock is roughly 20 centimetres, the lowest in the recorded time series. Additional figures indicating the stock is in peril include parasite loading, generally poor condition over the long term (Fulton K factor), poor growth, questionable recruitment, and unexplainable high mortality of larger, older cod.¹³ These issues are similar to those observed in Newfoundland, Canada for decades following the collapse of the northern cod fishery.

Discarding of cod is considered to be a more substantial issue in the eastern Baltic than in the western Baltic. Limited observer data indicates that undersized cod represents nearly 11% of the total catch in tonnes, or 20% in numbers (11 million individuals), while in landings data undersized cod represents less than 2%. This mismatch, due to discarding of undersized cod in circumvention of the landing obligation, is itself likely to be an underestimate of the true discard rate. Scientific observers in some Member States were previously unable to board and observe fishing activities. According to information provided during the Advice Drafting Group, this has been resolved. ICES has obtained information that fishers are illegally modifying their gear to increase catch rates of all cod, subsequently discarding the undersized catch.

⁹ HELCOM. 2013. Species Information Sheet *Gadus Morhua*: <http://www.helcom.fi/baltic-sea-trends/biodiversity/red-list-of-species/red-list-of-fish-and-lamprey-species>

¹⁰ ICES. 2017. Annex 7.7 - Eastern Baltic Cod assessment using seasonal data and SPiCT

¹¹ Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) (OJ L164/19, 25.6.2008)

¹² Mohrholz V., Naumann M., Nausch G., Krüger S. and U. Gräwe. 2015. Fresh oxygen for the Baltic Sea – An exceptional saline inflow after a decade of stagnation. *Journal of Marine Systems*, 148: 152-166; Karnicki, S., BSAC General Assembly, 26 April 2016.

¹³ WGBFAS 2017, p.40

Recommendation: We urge Ministers to support ICES advice and set the TAC at no more than 24 767 tonnes. Moreover, we strongly advise Ministers to implement ecosystem based spatial management, redirect the sprat fishery northward, away from SD 25 and enforce the landing obligation.

We do not support a quota transfer between the eastern and western Baltic cod stocks for the reasons outlined above in the western cod section, however, if quota is transferred from the eastern cod TAC to the western, then the corresponding amount should be deducted.

Redirecting the sprat fishery aims at providing more food for the cod where it is more abundant. In addition, applying Articles 17 and 22 will allow for capacity to be better aligned with the available resources and form part of the effort to comply with the MSFD, in particular descriptor 3 of a healthy age and size distribution of the cod.

HERRING

The Baltic herring (*Clupea harengus*) is managed in four separate areas: Central Baltic Sea, Gulf of Riga, Western Spring Spawners, and Gulf of Bothnia. The Central Baltic and Gulf of Riga herring stocks overlap in area 28. ICES provides its primary advice on the total catch of these stocks, then identifies the proportion of stock mixing and the resulting TAC for each management area.

Herring in Subdivisions 20-24, Western Baltic Spring Spawners

Western Baltic spring spawning herring (*Clupea harengus*) is one of the more complex stocks to assess. Inter-annual variability in the migration patterns, migrations between the Baltic and North Sea management areas, catch distribution among fisheries, and stock mixing with central Baltic herring all add to the complexity.

The stock biomass declined substantially from the early 1990s amid increased fishing mortality and reduced recruitment, reaching its lowest estimated SSB in 2011. Since that low, relative reductions in fishing mortality appeared to have permitted modest growth in the SSB, though recruitment remains low.

The current assessment has revised the biomass downward and recent historical fishing exploitation rates upward. The stock is now considered overfished, below B_{trigger} , and fishing pressure is above F_{MSY} .

Considering the variability in historic assessments, the perception of the stock has changed due to uniformly low survey indices from all 2016 surveys.¹⁴ Due to the revision in the assessment, the total catch advised across the range of this stock is 34 618 tonnes.

This stock is subject to a TAC setting procedure in annually negotiated agreements between the EU and Norway.¹⁵ The interpretation of this TAC rule allocates half of the advised catch, or 17 309 tonnes, to the Baltic SD 22–24 and the other half to the North Sea.

¹⁴ Surveys include two acoustic surveys, two trawl surveys, and one larval survey.

¹⁵ Industry & Fisheries Ministry, Norway. 3 December, 2016. Press Release. Kvotavtale med EU for 2017. Available at: <https://www.regjeringen.no/no/aktuelt/kvotavtale-med-eu-for-2017/id2522649/>

Recommendation: We urge Ministers to set the TAC in accordance with the MSY approach corresponding to ICES advice, with the quota split noted above, resulting in a TAC of no more than 17 309 tonnes.

Herring in Subdivisions 25–29 & 32, Central Baltic Sea, excluding Gulf of Riga

This is the largest of the Baltic herring stocks, composed of a number of local populations. Following a SSB decline below B_{lim} in the late 1990s, the stock has shown a steady increase and is now well above $MSY B_{trigger}$. Fishing mortality has remained below F_{MSY} since 2004.

The 2014 year-class of herring, recruiting to the fishery in 2015, is remarkably high compared to all other years in the time series, making it the highest since the time series began in 1974. This is an improvement on the previous year's assessment, which assumed the 2014 year class to be the fourth-largest in the time series.

ICES advises that total catches in 2018 should be no more than 267 745 tonnes (Baltic MAP F_{MSY}). Stock mixing with Gulf of Riga herring, and accounting for the Russian quota share, results in a different corresponding EU portion of the TAC.

A previously negotiated TAC sharing agreement with Russia provides their herring fisheries with 9.5% of the total TAC, amounting to 25 048 tonnes if the ICES advice is followed, leaving 242 309 tonnes as the EU quota.

The assumed 2018 commercial catch of this stock in the Gulf of Riga, outside of the Central Baltic, is 4 340 tonnes, and the assumed catch of Gulf of Riga herring in the Central Baltic is 260 tonnes. The resulting total EU quota according to the range incorporated in the Baltic MAP would be from 177 134 tonnes to 295 937 tonnes. The adjusted EU quota at Baltic MAP F_{MSY} would be 238 229 tonnes.

Any EU quota, with adjustments, set above the F_{MSY} value in this range is only permissible according to the Baltic MAP if certain conditions are met. There is no evidence provided in the ICES advice to justify exceeding the F_{MSY} point value.

Discards are considered negligible. Due to the introduction of the Landing Obligation, interspecies quota transfers of up to 9 % are legally permitted, within conservation constraints. The ICES advice does not consider any of these transfers, and notes that any future transfers should not result in overall harvests exceeding scientific advice.

Recommendation: In accordance with the Baltic MAP and the adjustments noted above, and lacking justification in the Baltic MAP to exceed F_{MSY} , we ask the Ministers to set the the EU portion of the TAC within the range of 177 521 tonnes to 238 229 tonnes, in line with ICES advice.

Herring in Subdivision 28.1, Gulf of Riga

The Gulf of Riga is a semi-enclosed ecosystem of the Baltic Sea with lower salinity than the main basin, with the smallest and slowest growing individual herring in the Baltic. Herring is the dominant marine species in the Gulf, with few natural predators. Fishing mortality has been close to, but generally over, F_{MSY} , and has increased steadily since 2015 according to the current assessment.

Recruitment of Gulf of Riga herring is highly dependent on environmental conditions, particularly water temperature and zooplankton abundance. Since 1989 the majority of winters have been mild, favouring herring reproduction. Current recruitment appears roughly average, although there has been high variation within the time series.

ICES advises that total catches in 2018 should be no more than 24 919 tonnes (Baltic MAP F_{MSY}). Stock mixing with Central Baltic herring results in a different corresponding TAC for the Gulf of Riga management area. The assumed 2018 commercial catch of this stock in the Central Baltic, outside of the Gulf of Riga, is 260 tonnes, and the assumed 2018 commercial catch of Central Baltic herring in the Gulf of Riga is 4 340 tonnes.

The corresponding TAC for this management area, recognising stock mixing, would be no more than 28 999 tonnes (Baltic MAP F_{MSY}). While a larger figure than the advised total catch for the whole stock, the corresponding TAC reflects fishing levels no greater than F_{MSY} before adjustments. The possible TAC according to the F-range incorporated in the Baltic MAP would be from 23 476 tonnes to 33 275 tonnes. Discards are considered negligible.

Any TAC, with adjustments, set above the F_{MSY} value in this range is only permissible according to the Baltic MAP if certain conditions are met. There is no evidence provided in the ICES advice to justify exceeding the F_{MSY} point value.

Recommendation: In accordance with the Baltic MAP and the adjustments noted above, and lacking justification in the Baltic MAP to exceed F_{MSY} , we ask Ministers to set the TAC within the range of 23 476 tonnes to 28 999 tonnes, in line with ICES advice.

Herring in Subdivisions 30-31, Bothnian Sea & Bothnian Bay

Previously treated as separate stocks in ICES advice, Bothnian Sea and Bothnian Bay herring have been combined into a single advice reflecting the TAC management area. ICES has calculated new F-Ranges for this combined stock. Until the new ranges are defined and agreed within the Baltic MAP, ICES provides advice based on the ICES MSY approach.

Due to low salinity and low mean temperature, herring in the Gulf of Bothnia is slow-growing and relatively small. The spawning stock biomass of Bothnian Sea herring tripled in the late 1980s, only to then drop by 40% by 1999. Since 2003, this stock's SSB has grown to the highest levels assessed in 20 years, with decreases noted since the 2014 peak.

While the SSB is still relatively high, ICES dramatically revised the stock's estimated SSB downward in 2015. This was due to a necessary change in the assessment to handle ongoing uncertainty regarding the recent acoustic survey recruitment estimates. These concerns should diminish over time as the acoustic survey time-series grows.

The ICES advice for 2018 is that catches should not exceed 95 566 tonnes. Discarding is considered negligible.

The fishing exploitation rate and total catch from this stock have steadily increased and are the highest in the 1980–present time series. The fishing exploitation rate has historically remained below F_{MSY} , but since 2015 it has been above F_{MSY} .

Recommendation: We advise Ministers to set a TAC between 70 617 and 95 566 tonnes, in accordance with the MSY approach. Moreover, we call on Ministers to revise the Baltic

MAP and develop new biomass and fishing mortality reference points in order to reflect that the Bothnian herring stocks are now managed together.

SPRAT

Subdivisions 22-32

Sprat (*Sprattus sprattus*) is managed as a single stock across the Baltic Sea. Declining to below B_{lim} in the early 1980s, sprat then recovered to well above $B_{trigger}$, reaching a maximum assessed SSB in 1996 of 1.9 million tonnes. Sprat stocks have since fluctuated above $B_{trigger}$, corresponding to relative changes in fishing mortality.

Eastern Baltic cod and sprat stocks share a strong predator-prey relationship. Higher cod SSB in the early 1980s contributed to lower sprat populations. As cod declined, sprat recovered. The assessment correlates natural mortality via predation on sprat with eastern Baltic cod biomass and cod stomach content analysis.

ICES estimates a decreasing fishing mortality from 2013 to the present, falling to sustainable levels, below F_{MSY} , in 2016. This is the first time fishing mortality is within long-term sustainable levels since 1994. The resulting total catch advice for 2018, reflecting increasing SSB and decreasing fishing mortality, is 291 715 tonnes (Baltic MAP F_{MSY}).

A previously negotiated TAC sharing agreement with Russia provides their sprat fisheries with 10.08% of the total TAC, or 29 405 tonnes. The resulting EU quota according to the range incorporated in the Baltic MAP would be from 197 061 tonnes to 271 308 tonnes. The adjusted EU quota at Baltic MAP F_{MSY} would be 262 310 tonnes.

Any EU quota, with adjustments, set above the F_{MSY} value in this range is only permissible according to the Baltic MAP if certain conditions are met. There is no evidence provided in the ICES advice to justify exceeding the F_{MSY} point value. Discarding is considered negligible.

In addition to advice on total catch, ICES has repeatedly advised that a spatial management plan be considered for the fisheries that catch sprat. This is based on the need to improve the overall condition of eastern Baltic cod. Recent detailed research further supports this advice.¹⁶ Decreasing fishing effort on sprat in SD 25 and 26 would make more sprat available as feed for cod, potentially improving cod conditions.

At present, sprat is more abundant in areas outside of the cod's range in SD 25 and 26. Increasing effort northward in the Baltic to SD 27–32, through restrictions on sprat catches in the main cod area, would also optimize the yield and growth of sprat (and herring, with similar density-dependence traits, though less critical for cod condition) by reducing competition within these stocks for prey.

Recommendation: In accordance with the Baltic MAP and the adjustments noted above, and lacking justification in the Baltic MAP to exceed F_{MSY} , we ask Ministers to set the EU portion of the TAC within the range of 197 061 tonnes to 262 310 tonnes, in line with ICES advice.

¹⁶ Casini, M., Käll, F., Hansson, M., Plikshs, M., Baranova, T., Karlsson, O., *et al.* 2016. Hypoxic areas, density-dependence and food limitation drive the body condition of a heavily exploited marine fish predator. Royal Society Open Science, 3: 160416. 15 pp.

Furthermore, we strongly urge Ministers to redirect the sprat fishery away from SD 25, implementing ecosystem-based management in order to increase the food available for cod where it is most abundant and reduce the likelihood of M74 in salmon.

SALMON

ICES advises on Baltic salmon (*Salmo salar*) catch within two management areas: the Main Basin and the Gulf of Bothnia (SD 22–31), and the Gulf of Finland (SD 32). Within these management areas Baltic salmon exist in a large number of river-specific populations ranging from healthy to vulnerable.

The last Baltic-wide management plan for Baltic salmon ended in 2010. The European Commission proposed a new plan in 2011 (COM(2011)470) which is still in negotiation. Currently salmon stocks are managed through EU quotas annually set in Council and individual Member State management of local salmon rivers. However the lack of an approved long-term management plan for Baltic salmon is particularly serious as Baltic salmon is listed under the Habitats Directive, obliging Member States to ensure “favourable conservation status”. Salmon management targets are also included in the Water Framework Directive and the Marine Strategy Framework Directive.

Baltic salmon are particularly vulnerable to environmental conditions in their home spawning rivers. Dams and other forms of habitat destruction can prevent salmon from spawning at all. In many parts of the Baltic Sea region, particularly in the South, natural salmon populations have declined or disappeared.

In some larger rivers, hydropower companies are obliged to carry out major restocking programs, releasing salmon smolt (young salmon), in order to compensate for the loss of habitat and migration obstacles resulting from hydropower installations. The process of restocking is costly and ineffective. Today, reared fish die in high numbers before maturing to spawning adults. Although 4.2 million reared salmon smolts were released in 2015, compared to 3.1 million produced in the wild, salmon catches consist of between 65% and 87% wild fish.

Despite some positive developments, such as improved habitats in both spawning and nursery areas and subsequent increases in natural reproduction, the wild salmon in several rivers have not recovered. Juvenile salmon suffer higher than expected mortality. The reasons for this low survival are still largely unknown.

Baltic salmon populations remain depressed due to a combination of environmental factors including hydro-power and habitat destruction. Further problems include fishing mortality, substantial misreporting, low post-smolt survival and poor reproduction of some populations. Fisheries in open sea areas or coastal waters pose a greater threat to depleted stocks than fisheries in estuaries and rivers.

Recommendation: We urge Ministers that the management of salmon fisheries should be based on the status of individual river stocks, as advised by ICES, and fisheries on mixed stocks should be reduced as they present particular threats to stocks that do not have a healthy status.

Salmon in Subdivisions 22–31, Baltic Sea excluding Gulf of Finland

ICES assesses 29 rivers divided into 5 assessment units based on salmon biology and genetics. Since 1997 wild smolt production has increased substantially from very low values, particularly in the North. Smolt production in the Southeast shows no signs of improvement. Increases in smolt production are mainly due to increases in 2–3 rivers. The situation in the southernmost rivers is unchanged or deteriorating.

The target for rebuilding stocks is to reach at least 75%¹⁷ of the estimated potential smolt production for each river. As an interim objective for weak stocks, 50% of the potential smolt production is used. Potential salmon habitat may still be underestimated in a number of salmon rivers such as the Pite River resulting in an incorrect potential smolt production. Out of 29 stocks assessed, only 6 rivers show a high probability of reaching the 75 % target in the near future, 11 rivers show a less-than-high probability, and 12 rivers are less than 30 % likely to reach this goal. Of those 12 rivers, 8 are less than 30% likely to meet even the interim goal.

The rivers Rickleån, Kågeälven, and Testeboån in the Gulf of Bothnia, Emån in southern Sweden, and several other rivers in the Southeastern Main Basin are especially weak and desperately in need of longer-term stock-specific rebuilding measures.

Although not incorporated into the assessment, recent data suggests that M74 syndrome is increasing again. M74 syndrome is caused by an unbalanced salmon diet predominantly based on young sprat forming too large a part of their diet, which lack adequate thiamine for the salmon's reproduction cycle. This deficiency is passed onto salmon eggs and young salmon fry causing high mortality.¹⁸

In addition to other sources already considered in the ICES working group on Salmon, preliminary data from the Swedish power company Vattenfall indicates a clear increase in M74 in 2017.¹⁹ Local estimates from Vattenfall indicate an increase of M74 syndrom from 10% to 25-58% in female salmon, with increasing ratios in southern rivers such as Dalälven (58%). Vattenfall will voluntarily begin thiamine treatments in 2017 on affected reared populations, though the positive effect of these treatments is uncertain. Wild populations cannot be treated. The anticipated high mortality will result in a need for greater precaution when setting fishing opportunities for 2018.

ICES advises a total commercial catch at sea of 116 000 individual fish. ICES estimates the fishery will correctly report only 68% the total commercial salmon catch, with an additional 16% misreported, 7% unreported, and 9% unwanted. Thus the estimated misreported, unreported, and unwanted catch must be deducted from the total commercial catch to determine the EU quota.

The proportion of the total catch estimated as misreported, wanted catch for 2018 has more than doubled in the last year. This is due to an estimated increase in misreported catch from

¹⁷ In the HELCOM Baltic Sea Action Plan and Finland, the target is 80 % of potential smolt production.

¹⁸ Keinänen, M., Uddström, A., Mikkonen, J., Casini, M., Pönni, J., Myllylä, T., Aro, E., and Vuorinen, P. J. 2012. The thiamine deficiency syndrome M74, a reproductive disorder of Atlantic salmon (*Salmo salar*) feeding in the Baltic Sea, is related to the fat and thiamine content of prey fish. ICES Journal of Marine Science, 69: 516–528.

¹⁹ Personal communication, Lidström, M. Vattenfall, 30 May 2017.

4 300 in 2015 to 16 990 in 2016 through increases in Polish offshore longline and gillnet fishing²⁰. The total catch advice remains the same, though the quota corresponding to ICES advice reflects this change.

Recommendation: We urge Ministers to support a salmon TAC in the Baltic Sea, excluding the Gulf of Finland, of no more than 78 400 individual fish, which is calculated from ICES advice minus estimated misreported and unreported catch.²¹ Moreover, we call on Ministers to redirect the sprat fishery given the recurrence of M74 syndrome and to move forward with the salmon management plan.

Salmon in Subdivision 32, Gulf of Finland

This area contains a few small, wild populations with mixed reared and wild salmon caught in some rivers. The wild salmon populations are genetically distinct from each other, which indicate that these still are original salmon stocks, meaning that they have not reproduced with reared salmon. Reared salmon are easily identified by their missing adipose fin. This fin is removed before releasing a reared salmon into the wild. TAC management alone has been insufficient to improve the condition of wild salmon in the Gulf of Finland. This, among other reasons, triggered a 2016 EU special request on management measures for salmon in the Gulf of Finland.

ICES considers salmon stocks in the Gulf of Finland data-limited and advises using the precautionary approach. Very little data on wild smolt production is available for the assessment, consisting mainly of limited electrofishing surveys. Recreational sea and river catches are uncertain. In ICES expert judgement, all wild salmon rivers in the Gulf of Finland are well below the 75% potential smolt production target and generally not showing signs of recovery.

TACs have not been set in line with ICES advice since 2011. According to ICES, a reduction in the TAC alone would most likely not safeguard wild populations from exploitation. Instead, ICES advises the development of more selective harvesting methods that target reared salmon and improved enforcement to reduce illegal catches.

Assuming a similar amount of restocking to previous years, ICES advises a total commercial catch at sea of 11 800 reared salmon, including a revised 2016 estimate of 81% wanted, reported catch, 16% unwanted catch and 3% unreported catch. The historic catch table clarifies that unwanted catch is all discarded for 2016, despite the implemented landing obligation, thus the amounts of unreported, and unwanted catch must be deducted from the total commercial catch to determine the EU quota.

Recommendation: We ask Ministers to follow the ICES advice, setting a total TAC of no more than 9 558 salmon. All catches should be reared fish only, with zero catches of wild salmon, corresponding to ICES advice and the precautionary approach. Moreover, we call on Ministers to move forward with negotiations and adopt the salmon management plan.

²⁰ WGBAST 2017, p.17

²¹ The International Baltic Sea Fisheries Commission implemented a Baltic TAC sharing agreement between the EU and Russia in 1993, including a Russian salmon TAC share of 1.9% in SD 22-31 and 9.3% in SD 32. However there is no targeted fishery for salmon in Russia and relatively minor bycatch in the sea and coastal fisheries. While a shared stock, no reduction to the EU quota appears necessary.

PLAICE

Subdivisions 22-32

Plaice (*Pleuronectes platessa*) is the only flatfish species in the Baltic Sea subject to EU quota management. The landing obligation has applied to plaice catches since the start of 2017. Thus total catch advice will correspond to a TAC for the Baltic management area. ICES advice identifies a western stock (SD 21–23) and an eastern, or Baltic, stock (SD 24–32).

For the western stock, ICES applies the MSY approach for the 2018 advice resulting in a total catch not exceeding 5 405 tonnes. ICES estimates that 41.4% of western plaice (2 237 tonnes) is caught in SD 21. The corresponding Baltic TAC must be reduced by plaice catch in SD 21.

ICES categorises the eastern Baltic plaice stock as data-limited, and provides advice in line with its precautionary approach. The resulting advice for eastern Baltic plaice given the estimated increase in SSB is 3 104 tonnes. Adding the remaining plaice catch in SD 22-23 (3 168 tonnes) results in a Baltic TAC corresponding to advice of 6 272 tonnes.

The overall reduction in advice for 2018 is due to uncertainty in the assessment, including both age reading problems in plaice and the short time-series of the assessment.

Both plaice stocks are subject to high levels of discarding (as much as 100% of the catch), as cod bycatch. According to ICES, the three year discard average has been 49.5% although this is likely an underestimate. The discard data for 2016 revealed a significant jump in discarding of the eastern Baltic stock, representing a conservative estimate of 67% of the catch discarded. This data is linked specifically to Danish trawl fisheries in SD 25.

Recommendation: We urge Ministers to follow the Commission proposal, which is in accordance with the precautionary approach. With adjustments made for the combined management areas of eastern and western Baltic plaice (SD 22-32), our recommended TAC corresponding to ICES advice would be no more than 6 272 tonnes.