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ICES ADVICE FOR THE EXPLOITATION OF BALTIC SEA FISH STOCKS IN 2015

On 30 May, ICES' Advisory Committee (ACOM) published their advice regarding the exploitation of the Baltic Sea fish stocks for 2015. The following provides a summary and comment on the assessments and advice.

ADVICE ACCORDING TO THE NEW CFP

The ICES advice is provided according to a traffic light system and stocks assessed against reaching the objectives of the reformed EU Common Fisheries Policy (CFP) – importantly Article 2.2:

The Common Fisheries Policy shall apply the precautionary approach to fisheries management, and shall aim to ensure that exploitation of living marine biological resources restores and maintains populations of harvested species above levels which can produce the maximum sustainable yield.

In order to reach this objective of progressively restoring and maintaining populations of fish stocks above biomass levels capable of producing maximum sustainable yield, the maximum sustainable yield exploitation rate shall be achieved by 2015 where possible and on a progressive, incremental basis at the latest by 2020 for all stocks.

This objective is also in line with the EU commitment made in Johannesburg in 2002[1].

Rather than focusing on avoiding an undesired outcome – as is the case with the precautionary approach – the Maximum Sustainable Yield (MSY) framework strives at *achieving a desired* outcome: a high sustainable long-term yield.

Exploitation rates (F_{MSY}) in line with the MSY target are estimated to maximise the average long-term catch. ICES defines B_{MSY} as the Spawning Stock Biomass (SSB) that results from fishing at F_{MSY} for a long time. The fishing mortality (F) is a measure of the number of fish killed by fishing. The Spawning Stock Biomass (SSB) for the stock is the reproductively mature fish, measured in tonnes. A biomass reference point – MSY $B_{trigger}$ – is used within the MSY framework and should trigger a "cautious response" when the biomass is estimated to fall below it. In practice it is often set at Bpa – the precautionary reference point for SSB – even though the two concepts have a different basis. MSY $B_{trigger}$ is also said to constitute the lower range of B_{MSY}.

In 2012, ICES developed a framework for quantitative advice regarding data-limited stocks, which forms the basis for the data-limited approach in quota management. The advice for data-limited stocks is essentially based on a combination of biomass indices and landings data (depending on what is available) and a ±20 per cent "uncertainty cap" is applied to the previous years' advice or so-called *status quo* landings. ICES identified six different categories of data-limited stocks, and several of the Baltic Sea stocks falls within these categories – most notably, the eastern Baltic cod stock has been classed as data-limited in this year's assessment.

[1]Johannesburg Declaration, WSSD, 2002.

Because of the upcoming implementation of the new EU landing obligation – also called the discard ban – ICES has introduced some new terminology in the advice for 2015. "Wanted catch" is now used to describe fish that would be landed in the absence of the EU landing obligation, whereas "unwanted catch" refers to the previously discarded component. In some cases, the total catch – i.e. the catch quota – is not known due to poor discard data from previous years. It is hoped that the discard ban will gradually improve the knowledge of all catches and give a fuller picture of overall fishing mortality.

COD

Since 2004, the Baltic Sea cod (*Gadus morhua*) is managed as two separate stocks: the eastern and the western stock. The stocks are biologically distinct from one another, although there is some migration of fish between the areas. In 2007, a multi-annual plan for both stocks was adopted (EC 1098/2007), which aims at restoring the cod stocks to sustainable levels and keeping them there.

Due to the recently observed changes in (individual) growth rate of the eastern cod, ICES states that no multi-species advice can be delivered for 2015, as unchanged growth is assumed in the modelling used for multispecies catch projections.

Cod in Subdivisions 22–24, Western Baltic

The western Baltic cod stock is highly productive and has historically been about 25 per cent larger than it is today. In the 1970s and 1980s it was twice its current size. Since the late 1990s, the stock has been fluctuating between the precautionary biomass level (Bpa) and the level where stock recruitment could be at risk (Blim).

The cod in the area does not belong to one homogeneous genetic population and three potential spawning sites have been identified: the Sound (SD 23), the Belt Sea (SD 22) and the Arkona basin (SD 24). Spawning occurs during different periods of the year and ICES advises that measures to protect local spawners in the Belt Sea should be taken. There are also some recent studies indicating that local measures should be taken to protect spawners in the Sound[2].

The degree of mixing between the eastern and western cod stocks is estimated to have increased in recent years, particularly in SD 24; it is considered to be substantial and likely to increase uncertainties in the assessment.

The western cod stock was benchmarked in 2013 and it was concluded that ICES has consistently overestimated the fishing possibilities during the last years. Despite the fact that catches have been below the agreed TAC since 2010, the fishing mortality (F) has not declined as anticipated. It is still roughly twice the F_{MSY} = 0.26, and has even remained above the long-term target set in the management plan.

The existing cod management plan aims at rebuilding the stock by limiting the annual catches and there is a ± 15 per cent restriction on changes in the total allowable catch (TAC). It also sets out to reduce fishing effort (number of fishing days) by 10 per cent annually until the target fishing mortality (F = 0.6) has been reached. In this year's

[2]Lindegren, M., Waldo, S., Nilsson, P. A., Svedäng, H. and A. Persson. 2013. *Towards sustainable fisheries of the Öresund cod (*Gadus morhua*) through sub-stock-specific assessment and management recommendations.* ICES Journal of Marine Science, 70: 1140–1150.

assessment, ICES states that the current management plan can no longer be considered precautionary and is therefore basing its advice on the MSY approach, including estimated "unwanted catch".

Bycatch in the fishery mostly consist of flatfishes, especially flounder, which can be substantial at times. Some actions have been taken in the past to reduce discards and in 2001 modifications to fishing gear were introduced by the International Baltic Sea Fisheries Commission (IBSFC), including the "Bacoma" cod-end. The fishing industry has pointed out that these measures are ineffective and that increased flounder bycatch interferes with the selectivity of the gear, leading to increased cod discarding.

In accordance with the MSY approach, the ICES advice for this stock is that total commercial catches should be no more than 8 793 tonnes in 2015, including estimated unwanted catches. This would more than half the fishing possibilities for next year (-53 per cent). Following the management plan would yield a total commercial catch of 17 065 tonnes.

Cod in Subdivisions 25–32, Eastern Baltic

The eastern Baltic cod stock has historically been much larger than it is today. Due to very favourable environmental conditions and extremely strong year classes towards the end of the 1970s, the stock reached its historically highest levels in 1980–1982, when it was more than twice the size of today. In the early 21st Century, however, the stock was severely overfished and at risk of collapse. In recent years, supported by the multiannual plan, the stock was thought to be recovering. Today, however, it is labelled as "vulnerable" by both HELCOM and the International Union for Conservation of Nature (IUCN) due to the threat of synergistic effects of eutrophication and climate change[3].

Recent findings indicate that the eastern cod population is now in such a bad state that it is classified as data-limited, and ICES considers this assessment an interim solution. Over the past two years, the spawning stock biomass (SSB) is estimated to have decreased by more than 20 per cent. The main reason seems to be that the stock currently consists of a disproportional amount of small and thin individuals[4], coupled with a dramatic decline in the number and biomass of larger individuals.

At first, the primary cause of this was believed to be a lack of sprat and herring in areas with a lot of cod (i.e. SD 25). However, new information indicates that at least seasonally the occurrence of sprat may be high enough in the southern Baltic Sea, where cod is most abundant[5]. Additional factors related to the spread of hypoxic bottoms (as a result of eutrophication) may also explain the poor body condition of eastern Baltic cod. Swedish scientists recently concluded that a combination of hypoxic bottoms and competition for space control the population[6]. Due to the low oxygen levels, the benthic areas that cod can inhabit and where they can find other prey than clupeids (e.g. benthic invertebrates) have declined.

[3]HELCOM, 2013. Species Information Sheet for Cod: www.helcom.fi

[4]Eero, M., Vinther, M., Haslob, H., Huwer, B., Casini, M., Storr-Paulsen, M. and F. Köster. 2012. *Spatial management of marine resources can enhance the recovery of predators and avoid local depletion of forage fish.* Conservation Letters, 5(6): 486–492.

[5]Stefan Neuenfeldt, National Institute of Aquatic Resources, Technical University of Denmark, *pers. comm.*, 2014.

[6]Joachim Hjelm, Swedish University of Agricultural Sciences, *pers. comm.*, 2014.

Cod in general is highly limited by hydrological conditions (salinity and oxygen levels in bottom water) and recent reproduction has only been reported from the Bornholm Deep (SD 25) and to lesser extent in SD 26. The abundance of cod in northern areas is nowadays very low.

Because of the skewed geographic distribution and the species interactions between sprat, herring and cod, ICES is suggesting that a spatial management plan should be devised and implemented for herring and sprat, particularly in subdivisons 25–26. Decreased fishing effort on sprat and herring in SD 25–26 would likely optimize the growth of cod (more clupeids would become available for the growing cod stock), whereas increased effort in SD 27–32 would optimize the yield and growth of sprat and herring (by reducing the competition for food).

In the recent eastern cod assessment, there are three main areas of concern: 1) the observed changes in growth rate have made age reading more difficult and discrepancies among different scientists more pronounced; 2) the high proportion of slimmer individuals might have affected the "catchability" in fisheries and surveys, creating biased results; and 3) the rapid decline of larger individuals makes it difficult to determine whether they die from fishing or natural causes. All these concerns have led to a rejection of the age-based assessment used in the past.

Therefore, the current ICES advice is based on trends in SSB and the so-called *status quo* catch. Last year, only 36 356 tonnes were caught (46 % of the TAC, including estimated discards) – the low quota uptake can partially be explained by the reduced growth rate, resulting in whole age groups being below the legal minimum landing size. This has also led to increased discarding of undersized cod.

Since the SSB is estimated to have declined with more than 20 per cent, the ICES advice for 2015 is a 20 per cent reduction of the total *status quo* catch in 2013, resulting in total catches of no more than 29 085 tonnes. This is based on the data-limited approach and includes "unwanted catches" previously discarded. No alternative under the current management plan is provided.

HERRING

The Baltic herring (*Clupea harengus*) is managed in four separate areas: the Western Baltic and Kattegat, the central Baltic, the Gulf of Riga, the Bothnian Sea and Bothnian Bay.

Herring in Subdivisions 25–29 and 32, Central Baltic, excluding the Gulf of Riga

This is the largest of the Baltic herring stocks, but it is really composed of a number of local populations. After a dip in the late 1990s, the stock has shown a steady increase since the beginning of the 2000's and is now at about 70 per cent of the long-term average.

The strong increase of the sprat stock in the 1990s (SD 27–29 and 32) increased the competition for food between herring and sprat, and the mean weight of herring remains low. The herring stock is also affected by cod predation, and the size of the eastern cod stock may have a significant impact, but only in the southern areas (mainly SD 25) where cod is abundant. Thus predation from cod will have a limited effect on the Central Baltic herring population as a whole.

Because of the species interactions between sprat, herring and cod, ICES is suggesting more spatial management of herring and sprat, particularly in subdivisons 25–26. I Increased fishing effort in SD 27–32 would likely optimize the yield and growth of sprat and herring by reducing the competition for food.

ICES classifies the stock as being harvested sustainably and at full reproductive capacity. The fishing mortality under the MSY approach (F_{MSY}) has been set to 0.26. Bycatch and discarding are assessed as negligible and therefore the advice is on the total catch under the landing obligation.

For 2015, ICES recommends total catches of less than 193 000 tonnes – an 18 per cent increase compared to last year's TAC (including Russia). This TAC is, however, predicted to lead to a subsequent 12 per cent decrease in the SSB of the stock.

Herring in Subdivision 28.1, Gulf of Riga

The Gulf of Riga is a semi-enclosed ecosystem of the Baltic Sea and the low salinity restricts the occurrence of marine species. Herring is the dominant species in the Gulf, and predation mortality is low for the Riga herring.

The recruitment of Gulf of Riga herring is highly dependent on environmental conditions, such as ice cover. Since the 1989, the majority of winters have been mild, and this climate has been favourable for its reproduction. The mean weight started to decline in the mid-1980s and remains on the low side.

A mix of Gulf of Riga herring and central Baltic herring is caught in subdivisions 28.1 and 28.2. Therefore, the TAC set for Gulf of Riga herring includes a small proportion of central Baltic herring, currently 12.8 per cent of catches or approximately 3 950 tonnes, and vice versa for central Baltic herring. An almost negligible amount (0.8 %) of Gulf Riga herring is estimated to be taken in subdivision 28.2 together with central Baltic herring.

The fishing mortality consistent with MSY has been set to 0.35. However, the ICES models suggested two different candidate values for F_{MSY}: 0.35 and 0.26. The higher value now used by ICES should only be applied together with a 20 per cent limit on the variation of the annual TAC. Discard and illegal/unreported catches are considered negligible, and the advice is therefore for total catch under the new landing obligation.

For 2015, ICES recommends total catches of no more than 34 300 tonnes – a 32.9 per cent increase and a fishing mortality of 0.35 – in line with the MSY framework. This is predicted to lead to a subsequent 4.1 per cent decrease in the SSB.

Herring in Subdivision 30, Bothnian Sea

Due to low salinity and mean temperature, the 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 per cent by 1999. Since 2003, it has

increased again and is now on a record-high level. However, ICES has flagged great uncertainty around the estimates for the past two years.

The two separate herring stocks in the Bothnian Sea and Bothnian Bay are currently managed together, though data for the weaker, most northern stock is more limited. There are no specific management objectives or long-term management plan for these stocks, but according to ICES the joint TAC might not adequately protect the weaker stock.

In the whole region, the body weight of herring has decreased over the last 20 years. This might be due to a combination of a decrease in zooplankton prey, density-dependent effects and selective seal predation – though seal predation is considered to have a minimal impact on the stock. The weight decrease has had financial consequences for the Swedish fishery, as the production of "surströmming" demands a greater size.

ICES classifies Bothnian Sea herring as being harvested in a sustainable way and the TACs in recent years are the highest ever recorded – almost three times the TAC in 2007/2008. However, the quotas have not been limiting catches since 1991 due to low market demand. The fishing mortality consistent with the MSY approach has been set to 0.15 and discarding is considered to be negligible.

For herring in the Bothnian Sea, ICES recommends catches of no more than 181 000 tonnes for 2015, resulting in an increase in the TAC of 22 per cent. This is predicted to lead to a subsequent 9 per cent decrease in the SSB.

Herring in Subdivision 31, Bothnian Bay

This is a very small herring stock, existing under extreme environmental conditions [for herring]. A combination of low salinity, long winters, ice cover and cool summers affect the growth. Average weight has decreased since the 1990s.

Both the stock size and the fishing mortality for this stock are uncertain, and it is classified as a data-limited stock. ICES uses biomass index values in combination with recent landings data to provide its indicative advice, which shows an increasing trend for the past two years. Discarding is considered to be negligible.

For herring in the Bothnian Bay, ICES recommends total catches of no more than 5 534 tonnes for 2015 – an approximate increase of 20 per cent.

Western Baltic herring in Division IIIa and Subdivisions 22–24

This stock is usually called *western Baltic spring spawning herring*. In summer, it migrates from the western Baltic (SD 22–24) into the more saline waters of Division IIIa and the eastern parts of Division IVa in search of food. In these areas, it mixes with North Sea autumn spawning herring. For this reason, the two stocks have traditionally been managed together. A management strategy for both stocks, including procedures for setting the quotas in Division IIIa, was agreed by the EU and Norway in March 2014, but has not yet been evaluated by ICES.

In recent years, mixing with the central Baltic herring population (SD 24–26) has also been detected.

The western Baltic herring stock has largely been declining since the early 1990s. Despite decreasing catches during the same time period, the spawning stock biomass (SSB) continued to decline until it hit an all-time low in 2011. Recruitment is still below average and the reasons for the poor recruitment since 2006 are unknown, but most likely due to increased mortality at the egg or larval stage.

There is currently no long-term management plan for western Baltic spring spawning herring, but the IIIa TAC rule implies that half of the advised catch is set as a TAC for subdivisions 22–24, and the other half for the North Sea.

The ICES advice given is based on the MSY approach and "wanted catch". Despite the poor recruitment, the stock is estimated to be above MSY $B_{trigger}$ in 2014 – the lower range of B_{MSY} – and to be at full reproductive capacity under the precautionary approach. Fishing mortality – the proportion of the stock taken in the fishery – has decreased gradually but was still above F_{MSY} in 2013. It has not been possible to properly quantify discards, but indications are that they are low – below the "bycatch ceiling" in recent years.

The target fishing mortality (F_{MSY}) has been set at 0.28, and the MSY $B_{trigger}$ has been set at 110 000 tonnes – equal to Bpa.

For 2015, ICES advises on a "wanted catch" of western Baltic herring in divisions IVa east, IIIa and subdivisions 22–24 of no more than 44 439 tonnes. The resulting total catch cannot be quantified. This is an increase of 7 per cent in "wanted catch" but it is unclear how the Commission will handle the new "catch quotas" when no clear advice is available due to poor bycatch and discards data.

SPRAT

Sprat (*Sprattus sprattus*) appears to be spread out all over the Baltic Sea and is the largest fish stock in the region. It is managed as a single stock in subdivisions 22–32 – basically the entire Baltic Sea.

The stock is highly affected by the abundance of cod, its main natural predator. Therefore, spawning stock biomass was low in the first half of the 1980s, when the cod stocks were very large. In the beginning of the 1990s it started to increase and reached the maximum spawning stock biomass ever recorded in 1996–1997 at 1.7 million tonnes. Since then it has declined – fluctuating around 1 million tonnes since 2002 – and none of the last four year classes have been strong.

As with Baltic herring, the mean weight of Baltic sprat is currently low – in the 1990s it decreased by around 40 %. This decrease in weight is especially prominent in the northern Baltic (SD 27–29 and 32), where most of the sprat is currently concentrated.

Because of the skewed geographic distribution and the species interactions between sprat, herring and cod, ICES is suggesting that a spatial management plan should be devised and implemented for sprat and herring. Decreased fishing effort on sprat in SD 25–26 would likely optimize the growth of cod (more sprat would become available for

the growing cod stock), whereas increased effort in SD 27–32 would optimize the yield and growth of sprat and herring (by reducing the competition for food).

Fishing mortality is currently estimated to be above both the MSY target (F_{MSY} = 0.29) and the precautionary approach. Discards are estimated to be negligible and a total catch advice is provided. MSY $B_{trigger}$ is assumed to be equal to Bpa.

For 2015, ICES recommends catches of less than 222 000 tonnes – a 17 per cent decrease relative to last year. This is expected to lead to a 2 per cent increase in SSB.

SALMON

The Baltic salmon (*Salmo salar*) is a unique branch of the Atlantic salmon species. The management of Baltic salmon is currently divided into two areas: the Main Basin and the Gulf of Bothnia (SD 22–31) and the Gulf of Finland (SD 32). But, in reality, Baltic salmon consists of a much larger number of river-specific populations, some of which are still very vulnerable.

Baltic salmon is greatly affected by environmental conditions, especially those prevalent in the rivers of their origin to which they return to spawn. Dams and other forms of habitat destruction have had a devastating effect on salmon habitats and spawning grounds in the freshwater environments. In many parts of the Baltic Sea region, particularly in the south, the natural salmon populations have declined or even disappeared.

In some of the bigger 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 that the hydropower installations have resulted in. The process of restocking is very costly and ineffective. Today, reared fish die in high numbers before becoming adult. Even though 5.5 million reared salmon smolts are released each year, compared with 2.9 million naturally produced, salmon catches consist of between 72–92 per cent wild fish.

Baltic salmon has earlier suffered from a reproduction disorder called M74. The occurrence of M74 has been decreasing since the mid-1990s to a currently low level. However, M74 mortality has varied over the years and sudden changes in the incidence of the disease are likely to occur in the future.

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 has not recovered. Also, the positive trend has been countered by a steep decline in the survival of juvenile salmon (in the post-smolt life stages, when entering the sea). This decline has reduced fishing possibilities considerably. The reasons for this low post-smolt survival are still largely unknown, but the effects are rapidly limiting the effectiveness of the available management tools.

A ban of the Baltic Sea drift net fishery came fully into force in January 2008, and for a period of time the salmon catches decreased. By 2010, the long-line fishery for salmon had increased dramatically and catches were back to earlier levels. Since then, however, the catches in the offshore fishery have declined again and are now even lower than in 2008. The coastal fishery also shows an overall declining trend. River catches have increased since 2011, possibly because of the relatively large spawning runs in 2012 and

2013. According to ICES, the different aspects affecting the fishing effort and catches are 1) regulatory measures, 2) marketing restrictions due to the high dioxin content and 3) increased seal damage to both gear and catch.

To date, many of the targets set out in the Salmon Action Plan adopted by the International Baltic Sea Fishery Commission in 1997 have not been reached. A new management plan was proposed by the Commission in 2011 (COM(2011)470), but has not yet been adopted. This lack of long-term management is particularly serious as Baltic salmon is listed under the Habitats Directive, obliging Member States to ensure "favourable conservation status". It is also covered by targets in the Water Framework Directive and the Marine Strategy Framework Directive.

Together with environmental factors, fishing mortality, substantial misreporting, low post-smolt survival and the weak reproduction of some populations continue to keep stocks down. Fisheries in open sea areas or coastal waters are more likely to pose a threat to depleted stocks than fisheries in estuaries and rivers. ICES advises that management of salmon fisheries should be based on the status of individual river stocks, and that 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, Main Basin and the Gulf of Bothnia

In this area, populations in 29 rivers are assessed according to biological and genetic conditions. Management actions started in 1997 with the IBSFC Salmon Action Plan. Since then, the total wild smolt production has increased substantially from very low values, particularly in the north, but smolt production in the south-east shows no signs of improvement. It is important to remember, however, that this increase is mainly due to increases in 2–3 rivers, and that the situation in the southern-most rivers is unchanged or even deteriorating.

To evaluate the status of specific stocks, ICES uses the smolt production in 2013 relative to projected natural smolt production capacity on a river-by-river basis. The target for rebuilding stocks is to reach at least 75 per cent[7] of the estimated potential smolt production for each river. As an interim objective for weak stocks, 50 per cent of the potential smolt production is used. Out of 29 stocks assessed, only two of the northern-most rivers show a high probability of reaching the 75 per cent target in the near future, while ICES states that Emån, Simojoki, Rickleån and Öreälven are the least likely to reach it.

According to ICES, salmon stocks in the rivers Rickleån and Öreälven in the Gulf of Bothnia, Emån in southern Sweden, and in several rivers in the south-eastern Main Basin are especially weak and need longer-term stock-specific rebuilding measures. The offshore fishery in the Main Basin catches individuals from all weak salmon stocks on their feeding migration. In order to enable a potential recovery of weak stocks, further decreases in exploitation are required along their feeding and spawning migration routes at sea.

The overall perception of this stock has not changed much since last year. There does, however, seem to be some uncertainly regarding how to interpret the fishing mortality

[7]In the HELCOM Baltic Sea Action Plan, the target is 80 % of potential smolt production.

target proposed by the Commission in the management plan (COM(2011)470), and whether it includes the total catch at sea or just the commercial catch.

ICES is proposing a total commercial catch at sea of 116 000 individuals, consisting of an estimated 89 per cent "wanted catch" and 11 per cent "unwanted catch" (12 000 salmon). Misreporting of salmon (13 000 salmon) as seatrout, particularly in the Polish fishery, as well as unreported catches (12 000 salmon), continues to be a problem – it is estimated to 22 per cent in total – and affects the certainty of the assessments.

On the basis of the MSY approach, ICES recommends a total commercial sea catch of fewer than 116 000 salmon for 2015, including estimated discards of 11 per cent. This would imply a total catch of 180 000 individuals, when adding recreational catches at sea (17 000 salmon) and river-based catches (47 000 salmon).

Salmon in Subdivision 32, the Gulf of Finland

This area contains a few small, wild populations together with a few rivers with mixed stocks (consisting of both reared and wild salmon). The wild salmon populations are genetically distinct from each other, which indicate that these still are original salmon stocks, meaning that they have not been mixed with reared salmon.

In light of the MSY objective, wild salmon populations in the Gulf of Finland are well below the 75 per cent potential smolt production target and generally not showing signs of recovery. Very little data on wild smolt production is available for the assessment, consisting mainly of limited electrofishing surveys.

The ICES advice is therefore based on precautionary considerations rather than the MSY approach, and states that the fishing effort should not increase. Assuming a similar amount of restocking to previous years, the ICES advice is a total commercial sea catch of no more than 11 800 salmon, composed of 89 per cent "wanted catch" (of which 8 per cent is estimated as unreported) and 11 per cent "unwanted catch".

According to ICES, a reduction in the TAC would most likely not safeguard wild populations from exploitation. Instead, the advice is to develop more specific harvesting methods, like selective gears in specific areas, significantly reducing the risk of catching wild salmon. Information about the amounts of wild salmon caught in the mixed-stock fisheries is limited. Information about the extent of recreational fisheries targeting salmon is also limited.

For this area, ICES recommends no catches of wild salmon and that improved measures should be used to minimize the bycatch of wild salmon. Nevertheless, ICES suggests a fishery of 11 800 salmons, essentially based on restocking.

SEA TROUT

The Baltic Sea region contains approximately 1 000 sea trout stocks (*Salmo trutta*), which can be found in 881 rivers, and 471 of those stocks are thought to be wild. The status of the stocks varies considerably, as does the quality of their habitats in the rivers.

Sea trout is caught in rivers, coastal areas and the open sea. It does not migrate as extensively as salmon, but longer migrations do occur, and the main fishery is in fact in the Main basin. Catches of sea trout in the Main basin have been fluctuating from around 1 000 tonnes in 2002 to 212 tonnes last year.

The majority of the catches contain mixed stocks, which is potentially problematic for the weaker stocks. Discards of undersized sea trout take place mainly in the coastal fisheries, particularly in the gillnet fishery, but there are no clear estimates available for any fisheries. There are also strong indications that significant amounts of salmon are still misreported as sea trout, mainly in the Polish salmon fishery.

There is no TAC set for sea trout, but national regulations include *inter alia* minimum landing size, local and seasonal closures, and minimum mesh sizes for the gillnet fishery. The total catches of sea trout for 2013 were most likely much larger than 212 tonnes, as recreational catches, discards and unreported catches have not been included in this figure.

According to ICES, additional management measures to address bycatch of sea trout should be considered, particularly in SD 30–32. Minimum mesh sizes, reduction of fishing effort, minimum legal landing sizes, as well as temporal and spatial closures are all viable options. Existing fishing restrictions should be maintained and habitat improvements are needed in many rivers.

Based on precautionary considerations and the limited amount of data on sea trout population dynamics, ICES advises that catches in the Gulf of Bothnia and the Gulf of Finland should be reduced to safeguard the remaining wild populations in the region, both locally and on their migration routes.

FLATFISHES

Five flatfish species are found in the Baltic Sea: Baltic flounder (*Platichthys flesus*), turbot (*Scophthalmus maximus*), brill (*Scophthalmus rhombus*), plaice (*Pleuronectes platessa*) and dab (*Limanda limanda*). The fishing for these species is mostly for human consumption, although a large part of the flatfish caught in the Baltic today is bycatch in the demersal trawl fishery for cod, of which a substantial part is discarded. There are currently no management plans for either of these species, and the knowledge concerning most stocks is poor. However, progress has been made in recent years in assessing data poor stocks.

Flounder

Flounder is the most widespread and abundant flatfish in the Baltic Sea. This year, ICES is for the first time providing advice for four different stocks of flounder, instead of only one. This new advice is based on population studies, using a variety of different methods, all indicating that there are several distinct flounder stocks in the Baltic Sea. The exact number of stocks is, however, still uncertain.

The population studies show that two different strategies for spawning behaviour in flounder are correlated with the different stocks. In areas with low salinity, flounder spawn in shallow waters on the sea bottom, whereas in areas with higher salinity, flounder spawn in the open sea (so called pelagic spawners).

Most flounder landings come from bycatch in the cod fishery, although there are some targeted flounder fisheries, particularly in subdivisions 24 and 25. Preliminary analysis indicates that discarding of flounder in the cod fishery can be substantial.

ICES categorises all four flounder stocks as data-limited, which implies that a 20 per cent catch reduction compared to previous years' catch (*status quo* catch) in combination with an index-adjusted biomass assessment should be applied. The biomass assessment used by ICES is only based on a few trawl surveys. For flounder in the southern and south-central parts of the Baltic Sea (SD 22–25), positive trends in stock sizes can be seen, whereas the stock sizes in the central, north and eastern parts of the Baltic Sea are stable or slightly declining.

The ICES advice for the four stocks for 2015 is:

- landings of flounder in the Belts and the Sound (SD 22–23) should not be above 1 745 tonnes;
- landings of flounder in the southern Baltic Sea (SD 24–25) should not be above 17 182 tonnes;
- landings of flounder in the waters east of Gotland and the Gulf of Gdansk (SD 26 and 28) should not be above 3 257 tonnes;
- landings of flounder the northern Baltic Sea (SD 27 and 29–32) should not be above 228 tonnes.

According to the ICES advice for 2015, the combined landings for all stocks is 22 412 tonnes, which is an increase of 65 per cent for the whole region.

Turbot

Turbot is found in large parts of the Baltic Sea but is not as widespread as flounder. All the Baltic Sea turbot is suggested to belong to one genetically similar stock. The species is sedentary and show a high spawning site fidelity, which makes it locally sensitive to high fishing pressure. The state of the stock is not fully known, but the ICES stock size indicator does not show any significant long term trends.

Most of the fishing for turbot takes place in subdivision 22, but also in the more central parts of the Baltic Sea (SD 24–26). Catches have fluctuated greatly during the last decades, and in the 1990s landings were up to three times as high as today.

The stock is categorised as data-limited and the ICES advice for 2015 is the same as for previous years (2013/2014): no more than 220 tonnes.

Plaice, Dab and Brill

The remaining three species have a limited distribution in the Baltic Sea, mainly confined by their tolerance of low salinity. Plaice is common in the western parts and extends eastwards to the Gulf of Gdansk and northwards to the Gotland area; it is sporadically found farther north. Dab has a similar, somewhat more westerly distribution, whereas brill is almost exclusively found in SD 22–24. There are at least two plaice populations and indications of three different dab populations in the region.

According to the annual scientific trawl survey (BITS), in which the catch per unit of effort (CPUE) of individuals larger than 15 cm is considered, the plaice stocks appear to be increasing strongly. Dab has also increased in numbers in the last years, whereas brill seems to fluctuate considerably between years and no significant trends can be detected.

P**laice** is the only flatfish species in the Baltic Sea subject to EU quota management. Since 2012, the ICES advice is divided into a western stock (SD 21–23) and an eastern stock (SD 24–32). ICES categorises both stock as data-limited, which limits quota increases to 20 per cent. Both stocks are subject to high levels of discarding in other fisheries, and this has been considered in the ICES advice ("wanted" and "unwanted" catches).
Because of the strongly increasing population trends, the ICES advice for plaice for 2015 is that "wanted catches" in SD 21–23 should be no more than 2 626 tonnes (landings in 2013 was 1 955 tonnes) and "wanted catches" in SD 24–32 of no more than 886 tonnes (landings in 2013 was 738 tonnes).

The **dab** stock is categorised as data-limited and ICES has not been able to quantify the catches in 2013. The official landings in 2013 were 1 384 tonnes. Discards are considered to be substantial but could not be quantified. Taking into account the slight increase in biomass (ICES BITS survey), a decrease in fishing effort and a long-term positive development of the species in the area (a tree fold increase since 2002), **ICES recommends a slight increase of the landings to 1 428 tonnes for 2015**.

No new trends have been found for **brill**, even though ICES has included data from both landings and trawl surveys in the latest assessment. The stock is still categorised as data-limited. All catches are assumed to be landed. **The advice for 2015 is the same as for the previous year – catches of no more than 29 tonnes.**

WHAT HAPPENS NEXT?

The European Commission will publish a policy statement on fishing opportunities in 2015 in early June. After consulting the Scientific, Technical and Economic Committee for Fisheries (STECF), it will then publish a proposal for fishing opportunities in the Baltic Sea for 2015 – most likely in September 2014.

This will be discussed by the Council Working Groups prior to the Fisheries Council's meeting in October, where the 2015 quotas are likely to be agreed. In the meantime, the European Commission on behalf of the European Union will negotiate with Russia, which also fishes the Baltic. The Lisbon Treaty, which came into force on 1 January 2010, gives the European Parliament co-decision powers on most EU fisheries matters, but the setting of annual catch quotas remains the Council's sole responsibility.

As part of the increased regionalisation of the CFP, the Baltic Sea Advisory Council (BSAC) will consider and comment on the proposal, and it will be discussed in the regional forum for Baltic Member States – BALTFISH.