Appendix 1 to Agenda item B4

(Appendix 1) European Commission - Scientific, Technical and Economic Committee for Fisheries (STECF) – 46th Plenary Meeting Report (Section 6.3 pg.48)

Sea bass fisheries and their management

Background

ICES has provided assessments of the stock of seabass for 2013 identifying 4 potential stock areas. The stock distribution has increased; ICES identifies that there is evidence of local depopulation despite increasing incidence of the species. Considering the life cycle of this species there is a need to ensure that management measures are appropriate to the stock and can provide the necessary protection to limit mortality to prevent a decline in regional and local populations.

In 2012 and 2013 through expert meetings the Commission and Member States have been considering the introduction of a TAC for seabass. ICES has previously identified that a TAC may not be the most suitable means to effectively control mortality for this stock. Some Member States have also mentioned the CFP reform (landing obligation) as an argument against the introduction of a new TAC.

In addition recreational fisheries play a significant part in the total outtake. Member States have identified the existing various direct and indirect fishery national management measures that impact on both recreational and commercial activity.

Member States have been asked to consider their national controls on this species and identify possible management measures they could adopt. However there remains a need to evaluate the combined impact of these various management measures on the stock and to explore how these measures can be co-ordinated to effectively conserve the stock; the setting of particular catch limits for various fisheries should be considered.

Request to the STECF

STECF is requested to assess and comment on the national management measures of the Member States to determine their impact on the current stock distribution of Seabass. In particular STECF is asked to:

- Identify the contribution to mortality from the direct and indirect fisheries on a Member State basis;
- Identify for directed fisheries potential limits, and management indicators and possible avoidance/ technical measures for indirect fisheries.
- STECF are asked to identify management measures that can be considered precautionary or would allow for the management of the stock at MSY.

In addition STECF is asked, considering the latest advice for these stocks, to comment on:

- the effectiveness of the current national measures in controlling catches and in preventing an increase in fishing mortality and/or a decline in biomass for each stock;
- the likely effectiveness of existing national measures, under the current stock situation, in maintaining the stock at MSY levels if:

    - ☐ existing commercial effort levels remain constant;
    - ☐ or if existing catches are maintained
    - ☐ If possible comment on the potential impact on the stock if this situation is maintained over a 3-5 year timescale;

- Lastly STECF is asked to recommend measures that could be applied now to ensure that the stock is maintained within MSY levels.

STECF observations

The following information is based on the sea bass report (No. SI2.680348) and on the latest ICES stock assessment report (ICES 2014).

Sea bass stock structure and biology

The stock structure of sea bass remains poorly defined, and ICES has pragmatically split the populations into four stocks: i) North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c & VIIa,d-h); ii) west of Scotland and west/ south of Ireland (VIa, VIIb,j); iii) Bay of Biscay (VIIIa,b) and iv) Iberian coast (VIIIc, IXa). Currently, only the northern stock in IVb,c & VIIa,d-h has an analytical assessment, which indicates a rapidly declining biomass due to an extended period of poor recruitment and increasing fishing mortality. Some aspects of the biology of sea bass, including slow growth, delayed maturity, longevity to around 30 years, site fidelity in adults, and formation of offshore spawning aggregations, make the stock vulnerable to overexploitation and to local depletion. For the other putative stocks, no stock assessment is available. The information on stock status included in this report is therefore based on the assessment of North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c and VIIa,d-h) stock unit. However, some of the fisheries descriptions apply also to Bay of Biscay (VIIIa,b) stock unit.

Sea bass commercial fisheries

Sea bass commercial fisheries in areas IVb,c and VIIa,d-h comprise a mixture of inshore fisheries, with a large contribution of small-scale (artisanal) fisheries using mainly hook and line and gillnets and offshore fisheries targeting pre-spawning and spawning aggregations of sea bass. In the Bay of Biscay, sea bass is targeted mainly using trawls although longline, other hook and line fishing and gillnetting takes also place. In Iberian waters (Divisions VIIIc , IXa), a significant proportion of the catch is from a mixed fishery while trawls and seines are little used. One of the biggest of the sea bass fisheries on the stock in areas IVb,c and VIIa,d-h is the targeted fishery on mature fish aggregating to spawn on offshore

areas in the western Channel and approaches, including off North Devon and Cornwall. This is primarily a fishery involving around 30 French pair-trawlers, and smaller numbers of UK pair trawlers. This fishery operates from winter to spring on or near spawning grounds in the Channel when sea bass are aggregated. This is an offshore fishery, usually outside the 12 miles zone, and mesh size used is 100 mm or sometimes more. This fishery is responsible for over 25% of the total commercial and recreational fishery removals and for around 25% of the total fishing mortality of F(5-11) = 0.33 estimated by WGCSE 2014 for the years 2011 - 2013.

Sea bass recreational fisheries

The total recreational removals for areas IVb,c and VIIa,d-h are estimated around 1400t – 1600t compared with total reported commercial fishery landings of 4100t on average during 2009-2012. In the Bay of Biscay (VIIIa,b), recreational landings are estimated to be an average of 1430 t (2009-2011) compared with an average commercial landing of 2540t. From information available, the precision of the combined international estimate in areas IVb,c and VIIa,d-h is likely to be moderate, with relative standard errors of at least 20%. The ratio of recreational removals estimates in each country is a very consistent proportion of the combined recreational and reported commercial fishery landings (France: 25%; England: 28%; Netherlands: 26%; Belgium: 29%). The recreational catch estimates exclude figures for Wales or any other European countries without surveys that could report sea bass catches. It is concluded that recreational fishing may account for around 25% of total fishery removals and fishing mortality and this represents a significant missing catch from the assessment for earlier years with no recreational fishery survey estimates. ICES IBPbass (ICES 2014a) developed a method to reflect this additional mortality in the Stock Synthesis assessment model. The historical trends in recreational catches are unknown, but they are likely to differ from commercial catch trends. It is possible that, before the large growth in biomass of the stock in the 1990s, recreational fishing may have been a much larger proportion of total fishery removals than at present.

Current management measures

There are several national and EU wide controls on commercial and recreational fisheries for sea bass, which range from a moratorium on commercial fishing for sea bass around Ireland, minimum landing sizes, sea bass licencing for commercial fisheries in France, weekly or monthly boat limits in some commercial fisheries, closures of nursery areas in England and Wales, some closed seasons for French fleets and bag limits for recreational fisheries in several countries. There is no TAC for any of the stocks assessed by ICES. Detailed information is provided in the sea bass report (No. SI2.680348).

Stock status and proposed management measures

Fishing mortality on the North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c & VIIa,d-h) stock increased at the same time as the stock biomass increased in the 1990s and 2000s and F has continued to increase as stock biomass has recently declined.

It is possible for fisheries to maintain catches despite declining biomass, and hence inflict higher F, particularly for fisheries targeting spawning and feeding aggregations.

In order to achieve FMSY, a combination of national measures to reduce effort in the directed inshore fisheries, combined with measures to manage the offshore international fisheries on spawning sea bass, is urgently needed in the North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c & VIIa,d-h).

STECF conclusions

Generally speaking, catches of seabass in ICES IVb,c & VIIa,d-h can be broadly split into three categories: (i) recreational; (ii) commercial fisheries targeting seabass, and; (iii) fisheries where seabass are taken as a commercial by-catch in mixed demersal fisheries. Based on 2010-2013 data, recreational fisheries account for 26% of the overall catch (commercial and recreational); commercial targeted fisheries account for 33% (mid-water pair trawls and lines) and; other commercial fisheries where seabass are taken as by-catch account for 41% of the overall catch.

According to ICES (ICES 2014) and as reported in the sea bass report (No. SI2.680348), the largest contribution to the *commercial* landings for the North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c & VIIa,d-h) stock is made by the targeted French and UK midwater pair trawls fishery. These take over 34% of the *total commercial* landings and are responsible for around 25% of the total (commercial and recreational combined) fishing mortality (i.e. total F(5-11) = 0.325) estimated by WGCSE 2014 for the years 2011 - 2013. Other targeting commercial fisheries are lines fisheries mainly from France and UK, amounting to 8% of the total catch respectively. The remaining *commercial* catches are attributed to line fisheries targeting Sea bass (11%), while the remainder (and majority) of catches from commercial activity are associated with seabass caught as by-catches in demersal towed and static gears (Table 6.3.1).
The Member States' contributions of the commercial landings of the North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c & VIIa,d-h) stock, are as follows: France 65%; UK 21%, Netherlands 9%, Belgium 4% and around 1% for the other MS. The combined recreational fisheries from France, UK, Netherlands and Belgium are around 25% of the total landings of commercial and recreational fisheries in recent years.

In the Bay of Biscay (VIIIa,b), based on the average of 2010-12 data, France takes 91% of the sea bass landings and Spain the remaining 9%. France targets sea bass using mainly nets and midwater trawls. Recent estimates of recreational landings into France were 38% of the total of recreational and commercial French fisheries.

In the Iberian coast (VIIIc, IXa), based on the average of 2009-11 data, Portugal takes 61%, Spain 36% and France 3% of the commercial sea bass landings. In this area, a significant proportion of the landings are from a mixed fishery.

STECF concludes that in the absence of explicit gear- and Member State-specific estimates of fishing mortality, the landings by Member State and gear group relative to the overall landings of seabass is an appropriate proxy to estimate the contribution to the total mortality on sea bass. Based on the information presented in the sea bass report (No. SI2.680348), the approximate percentage contribution to the overall mortality by gear and Member State is given in Table 6.3.1.

Table 6.3.1. Average commercial and recreational landings of sea bass by country and gear group (where available) 2010 – 2013 and approximate contribution to overall mortality of sea bass.

Fishery	Landings	Percentage
UK (E&W) trawls	147	2.6
France trawls	793	14.0
UK (E&W) midwater	57	1.0
France midwater	1408	24.8
UK (E&W) nets	361	6.4
France nets	139	2.5
UK (E&W) lines	175	3.1
France lines	305	5.4
UK (E&W) other	65	1.1
France other	142	2.5
Belgium	165	2.9
Netherlands	384	6.8
Channel Isles	54	1.0
Recreational France 2009-11	940	16.6
Recreational England 2012	335	5.9
Recreational Netherlands 2010-11	138	2.4
Recreational Belgium 2013	60	1.1
TOTAL	5667	100

1. Identify for directed fisheries potential limits, and management indicators and possible avoidance/ technical measures for indirect fisheries.

See paragraphs 3 and 6 for information on potential limits and possible avoidance and technical measures. STECF considers that there is a range of possible management indicators but these would be dependent on the management objective and the available stock specific data and information.

2. STECF are asked to identify management measures that can be considered precautionary or would allow for the management of the stock at MSY.

STECF notes that ICES has not identified any precautionary reference points for sea bass stocks. However, a range of potential measures is available and could be considered for the management of the stock at MSY (Table 6.3.2). These could be implemented at a national, regional and EU level and include (in no particular order of preference):
(i) Catch limits
(ii) Improvements in selectivity;
(iii) Bag limit for recreational fisheries
(iv) Spatial and temporal closures
(v) Effort restrictions and licensing
(vi) Catch and release
(vii) Spatiotemporal tariff management

Table 6.3.2. Range of potential management measures applicable to the different fisheries catching sea bass in i) North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c & VIIa,d-h); ii) west of Scotland and west/ south of Ireland (VIa, VIIb,j); iii) Bay of Biscay (VIIIa,b) and iv) Iberian coast (VIIIc, IXa). X signifies a potential management measure applicable to a particular fishery group.

	Fisheries		
Management measures	**Target Fisheries**	**By-catch fisheries**	**Recreational fisheries**
Catch limits	X		X
Improvements in selectivity	X	X	X
Bag limits for recreational fisheries			X
Spatial and temporal closures	X	X	X
Effort restrictions and licensing	X	X	X
Catch and release			X
Spatiotemporal tariff management	X	X	X

(i) STECF notes that stock definition and management area for sea bass by ICES is pragmatic and may not correctly identify the true stock structure. STECF also notes evidence from tagging for strong site fidelity in adult sea bass, resulting in many fish returning to the same coastal sites after spawning each year. Catch limits e.g. TAC or individual vessel limits, for the whole area could allow mobile fisheries to contribute to an increase in F in excess of FMSY on any sub-stocks or localised populations. If catch limits such as TACs or individual vessel limits are to be considered as a means to manage fishing mortality on sea bass effectively, the resultant allocation of fishing opportunities would be complex and would need to be set at spatial scale which reflects the spatial structure of the various sub-populations which is currently poorly understood. In addition, STECF

observes that the landings statistics from the commercial fishery are uncertain due to the likelihood of underreporting. Unreported removals are associated with the allowances under article 65(2) of the EU Control regulation 1224/2009, which permits disposal of up to 30kg of fish for personal consumption without supplying sales slips and article 14 (1&4), which exempts the mandatory recording in logbooks of catches of all species less than 50kg . For small-scale, low-volume fisheries catching sea bass, this legal missing catch could be significant except in countries such as France where log-book schemes require reporting of all landings in under-10m fleets (Armstrong and Drogou, 2014 [report No. SI2.680348]). The uncertainty in the landings statistics due to underreporting should be considered when decisions are made on which management measures and associated data-reporting requirements could potentially be applied to the fishery.

(ii) Improvements in selectivity consistent with an increase in size at first capture would be beneficial in improving yield per recruit and spawning biomass per recruit (more detailed information is given in the sea bass report No. SI2.680348). Increases in mesh size and/or avoidance of juvenile areas would be required for example, but the implications for catches of other species taken in the fisheries need to be considered. Increasing the size at first capture in recreational and commercial line fisheries, by increasing the MLS, would result in a further increase in release rates. Post-release mortality in both recreational and commercial fisheries is poorly understood at present and appropriate studies are needed.

(iii) Recreational catches could be limited by the setting of bag limits. The bag limit would be determined by the desired overall outtake and the recreational fishing effort. This could be combined with a catch-and-release system, where once bag limits have been reached any subsequent catch should be released (see point vii). Recreational fisheries survey data should be analysed to predict the likely impact of different bag limits on reducing fishing mortality. In particular, the expected compliance rate associated with bag limits under current fisheries control and enforcement schemes should be assessed. Recreational fisheries are a significant component of the landings (around 25% for the North Sea, Channel, Celtic Sea and Irish Sea stock of sea bass and 38% for Bay of Biscay (VIIIa,b)), and thus the introduction of bag limits as a means to reduce fishing mortality should be considered.

(iv) The closure of targeted fisheries with well-defined spatial-temporal catch patterns could achieve a substantial reduction in fishing mortality (e.g. around 25% of the current F is attributed to the spawning-grounds fisheries in ICES IVb,c & VIIa,d-h) on adult sea bass provided the effort of the vessels involved in the fishery is not allowed to be displaced to other components of the sea bass populations within the stock area or in neighbouring stock areas. Spawning-grounds fisheries of sea bass are well defined in space and time, and target large sea bass individuals with a high spawning potential. As the location of spawning areas may vary from year to year (and during the same season), it is therefore important that any spatial and temporal closures during spawning should have sufficient coverage of all the main areas of spawning. However, it is not clear where or how the effort would be displaced or how displacement could be prevented. The likely compliance rate with the closures and the potential

impact of effort displacement on other species are also unknown. From a control and enforcement perspective it is crucial that the defined spatial closures are sufficiently large to ensure effective control. Closures would also need to be accompanied with suitable control provisions such as appropriate VMS transmission times for fishing vessels active in the area.

(v) Direct control of fishing effort (e.g. days at sea) could be considered but it is noted that this may be complex for sea bass. Direct control of fishing effort could involve limiting the available number of licences to both recreational and commercial fishermen, and/or associated restrictions related to variables contributing to effective effort, such as number and/or length of gillnets or longlines. However, the relationship between fishing effort and fishing mortality is unknown and studies have shown (e.g. Faroe Island studies) compensatory adaptations by business in an attempt to maintain or at least minimise the impacts of reduced fishing time allocations. The introduction of effort limiting measures would need be monitored and assessed to ensure that the required reduction in fishing mortality is in practice, being achieved.

(vi) The usefulness of management by spatiotemporal tariffs, where fishers 'pay' from an individual allocation of 'effort credit points' according to spatiotemporally varying tariffs, such as the recently proposed system (Kraak et al. 2012), could perhaps be explored. In some areas at some times of the year fishers would pay credits at a high rate per fishing day, whereas in other areas and/or other times of the year fishers would pay credits at a lower rate per fishing day. Similar as with real-time closures this would require monitoring of catches to identify areas with high concentration of juvenile or adult sea bass, and establishment of appropriate tariff levels. VMS or GPS would verify the fishers' location. This system is in fact spatiotemporal effort management and can include temporal/seasonal closures.

(vii) Consideration could be given to the introduction of compulsory catch and release for recreational fisherman. This measure would only be effective in case of high post-release survival.

3. The effectiveness of the current national measures in controlling catches and in preventing an increase in fishing mortality and/or a decline in biomass for each stock.

There are numerous regulations at the national level, which are described in details in the sea bass report (No. SI2.680348). Nevertheless, given the recent trends in F and SSB, STECF concluded that the combined current national measures have not been effective in controlling catches and in preventing an increase in fishing mortality and/or a decline in biomass for the North Sea, Channel, Celtic Sea and Irish Sea stock of sea bass. For the other stocks ii) west of Scotland and west/ south of Ireland (VIa, VIIb,j); iii) Bay of Biscay (VIIIa,b) and iv) Iberian coast (VIIIc, IXa), STECF is not in the position to determine the effectiveness of the national measures as an assessment of the stock status and trends in not available.

4. The likely effectiveness of existing national measures, under the current stock situation, in maintaining the stock at MSY levels if:

- existing commercial effort levels remain constant;
- or if existing catches are maintained
- If possible comment on the potential impact on the stock if this situation is maintained over a 3-5yr timescale;

According to ICES short term forecast, at the current level of F, the SSB of sea bass of North Sea, Channel, Celtic Sea and Irish Sea stock will continue to decline (about 23% in 2016 compared to 2015). This is also due to a combination of fishing in excess of FMSY and poor recruitment in recent years. Thus, STECF considers that the current existing national measures as a whole, if commercial effort and catches are maintained at the level observed in 2013, are likely to not be effective to control F and allow the stock to recover to MSY levels over a 3-5 years' timescale.

5. STECF is asked to recommend measures that could be applied now to ensure that the stock is maintained within MSY levels.

STECF notes that to reach FMSY as advised by ICES (ICES 2014), would require a reduction in F of around 60%. It is unlikely that any one single measure of those identified above will be sufficient to bring F to FMSY. A package of measures, including several of those identified above, will likely be required across the main commercial and recreational fisheries, depending on the management objectives for the different fisheries.

Additional observations:

Given the diversity of recreational and commercial sea bass fisheries, any given management measure could have highly inequitable economic and social impacts. Furthermore, the various parties involved in the exploitation of sea bass may have different objectives for their fisheries, thus making it necessary to consider potential economic and social impacts on both the commercial and recreational sector when taking management decisions. Therefore, the choice of specific management actions will not be straight forward as these will impact different sectors of the fishery and generate different social and economic downstream effects. Furthermore, when considering management objectives and the instruments to apply, an economic assessment should also consider possible differences in control and enforcement costs as well as the expected compliance levels associated with the various segments in the fishery.

References:

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