Brief analysis of the data received in response to the 2020 data call on landings by vessel and métier for sea bass (*Dicentrarchus labrax*) in divisions 4.b–c, 7.a, and 7.d–h

Background

The sea bass allocation tool makes use of vessel numbers by métier in order to raise the user selections to the fleet level. However, during the development of the tool, concerns were raised regarding the number of vessels used as these were thought to be an underestimation of the true number of vessels fishing sea bass in divisions 4.b–c, 7.a, and 7.d–h. In an attempt to better estimate the number of vessels fishing the stock, ICES made a request in a data call for all countries with commercial landings of sea bass to submit individual vessel landings by métier level 4 for the year 2019. The data submitted were anonymized at source; no individual vessel data can thus be identified.

This document presents a small analysis of the data received. The data is from 2019 and the main objective is to estimate the number of vessels by métier (level 4) fishing this stock as well as the uptake of the allowed sea bass landings. This information will help improve the sea bass allocation tool as it provides a more realistic baseline in relation to the number of vessels involved and the quantities of sea bass they are landing.

The data

Four countries answered the data call (France, UK, Belgium, and the Netherlands). Since the main interest of this analysis is on the stock level, data by country is only shown for the number of vessels (aggregated as specified in article 10 of EU, 2019) and a comparison between the landing values used in the assessment and those received in the data call. The comparison between the data used in the assessment and received is aimed to ensure that there are no major differences in the data sets (Table 1). Both data sets are very much in line with one another with the only exception being the Netherlands. This discrepancy in the Dutch data can be explained due to the fact that not all the data could be provided at the level of detail requested in the data call. This difference might lead to a slight underestimation of the number of vessels.

Table 1   Comparison between the landings data as used in the assessment and those received in the data call. Weights are in tonnes.

Country	Official landings	Sea bass tool data call landings
Belgium	18	18
France	299	306
Netherlands	202	36
UK	406	407

In the year 2019, a total of 2015 individual vessels declared commercial landings for sea bass in divisions 4.b–c, 7.a, and 7.d–h. Of these, 1902 vessels are spread among the four métiers of interest to the allocation tool (Table 2). In addition, 113 vessels use other métiers that are not specified in paragraph 2 of article 10 in EU (2019); those vessels are therefore not taken into account in this analysis. Despite the relatively large number of vessels, the landings from these 113 vessels amount to only 3.3% of all declared commercial landings and are considered negligible for this exercise. A breakdown of the number of vessels by métier and country is given in Table 3.

Some vessels use more than one gear throughout the year and in the data received 440 vessels used two gears while 38 vessels used three different gears. To estimate the total number of vessels landing sea bass, a simple rule was applied to eliminate duplication. Vessels using more than one métier during the year were assigned to the métier for which the highest landings were recorded. In most cases the difference in landings between métiers was large, making it a clear cut. However, in some cases, differences were very small. To develop a better method to identify the main métier of individual

Table 2   Comparison of the number of vessels used in the tool and those identified in the data call.

Level 4 métier	Number of vessels used in the tool	Number of vessels identified in the data call
Gillnets	239	700
Hooks and Lines	103	574
Seines	6	34
Demersal trawls	232	594
Total	580	1902

Table 3   Number of vessels by country and métier.

Country	Gillnets	Lines	Others	Seines	Trawls	Total
Belgium	2	0	0	4	50	56
France	227	148	77	9	293	754
Netherlands	4	0	0	18	58	80
UK	467	426	36	3	193	1125
Total	700	574	113	34	594	2015

The analysis by métier does not, however, take into consideration the use of more than one métier by individual vessels. Furthermore, landings are allocated to all the different métiers used, i.e. each landing is treated as if it came from an independent vessel.

Finally, the revised number of vessels will have an impact on the tool outputs as the tool assumes a full uptake of the allowed catch for each of the métiers. If this assumption holds true, the catch allowances for each of the vessels would have to be reduced quite significantly to ensure that the advised catch is not exceeded.

Analysis of the data

An interesting fact is that the hook and line métier accounts for 52% of all commercial landings (Figure 1). The number of vessels landing sea bass, on the other hand, is only 31% of the total (Figure 2). Lacking more detailed data and a longer time-series it is difficult to make any interpretation from these numbers.

Another important aspect to consider for each of the métiers is the sea bass allowance uptake. Given the substantial increase in the number of vessels, as shown in the data, it is important to get a better estimate of the real uptake of each of the métiers. The available data covers only a single year and may not be representative for all years, but it does give a more realistic view of the landing patterns of the various fleets. Currently, an uptake of 100% is assumed in the tool, but that figure is clearly overestimated as shown in Figures 3–5. These figures show the empirical cumulative distribution frequency (eCDF) for each of the métiers and the first notable aspect is that only a handful of vessels fully utilize the landings allowance.

In Figures 3–5 the yearly limits for métier, as specified in paragraph 2 of article 10 in EU (2019), are represented by a dashed vertical line, with each point in the figure representing the yearly landings of each individual vessel for that specific métier. It is worth mentioning that some vessels use more than one métier throughout the year; in such cases the same vessel will be represented in as many plots as the métiers used. Each of the figures also includes a table with some useful summary statistics. The quantiles give a good overview of the fleet uptake levels summarized in Table 3. This table shows that the uptake at fleet level is quite low. For the 3rd quantile, the highest value is 49.3% for the seines, which means that 75% of the seine fleet lands less than 1281 kg year^{-1} when the yearly allowance for seines is 2600 kg.

> The measures and limits described in article 10 of EU (2019) are more complex than the simplification used for this analysis. In some cases the yearly catch limits include limits that are based on a proportion of the total catch. This is not taken into consideration in the present document.

Table 4[*]   Sea bass uptake in relation to métier allowance as specified in article 10 of EU (2019).

Métiers	Yearly allowance (kg)	uptake at 1st quantile		uptake at median		uptake at 3rd quantile	
		%	kg	%	kg	%	kg
Gillnets	1400	0.9	12.0	4.4	62.0	19.4	271.2
Hooks and lines	5700	0.4	20.1	1.8	101.3	11.2	637.5
Seines	2600	15.4	401	27.5	716	49.3	1281
Demersal trawls	2600	0.4	9.3	2.3	59.5	9.6	249.0

Landings by metier

Metiers ■ Gillnets ■ Lines ■ Seines ■ Trawls

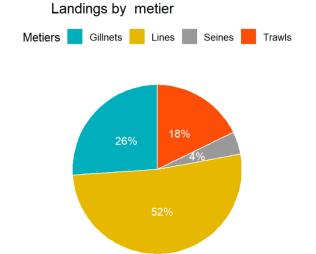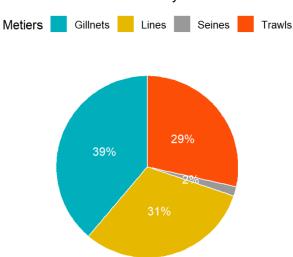**Figure 1**   Percentage of landings of sea bass in divisions 4.b–c, 7.a, and 7.d–h for allowed métiers.

Number of vessels by metier

Metiers ■ Gillnets ■ Lines ■ Seines ■ Trawls

Figure 2   Percentage of the number of vessels with declared commercial landings for sea bass in divisions 4.b–c, 7.a, and 7.d–h, using the four allowed métiers.

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[*] Version 2: Revision due to a correction to the yearly value for landings allowance for trawls and seines. Figure 5 and 6 and tables 4 were updated to reflect the correction.
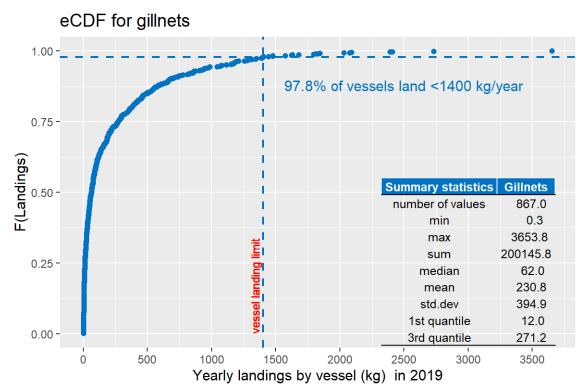
eCDF for gillnets

97.8% of vessels land <1400 kg/year

vessel landing limit

Summary statistics	Gillnets
number of values	867.0
min	0.3
max	3653.8
sum	200145.8
median	62.0
mean	230.8
std.dev	394.9
1st quantile	12.0
3rd quantile	271.2

Figure 3   Empirical cumulative distribution frequency of yearly landings of sea bass in divisions 4.b–c, 7.a, and 7.d–h for gillnet métiers.
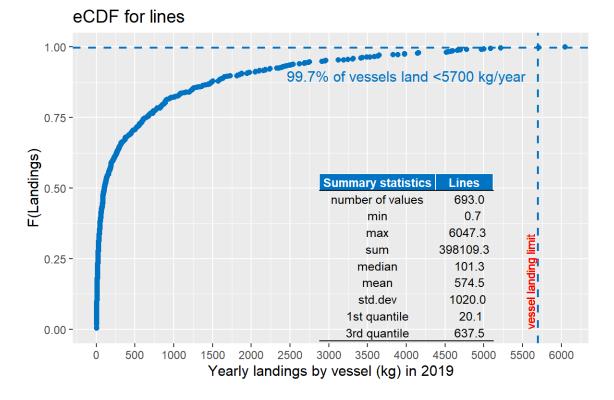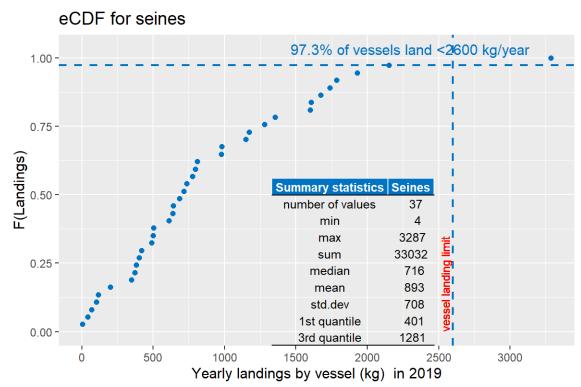
eCDF for lines

99.7% of vessels land <5700 kg/year

vessel landing limit

Summary statistics	Lines
number of values	693.0
min	0.7
max	6047.3
sum	398109.3
median	101.3
mean	574.5
std.dev	1020.0
1st quantile	20.1
3rd quantile	637.5

Figure 4   Empirical cumulative distribution frequency of yearly landings of sea bass in divisions 4.b–c, 7.a, and 7.d–h for line métiers.

eCDF for seines

Figure 5[†] Empirical cumulative distribution frequency of yearly landings of sea bass in divisions 4.b–c, 7.a, and 7.d–h for seine métiers.

[†] Version 2: Revision due to a correction to the yearly value for landings allowance for trawls and seines. Table 4 and Figure 5 and 6 were updated to reflect the correction.
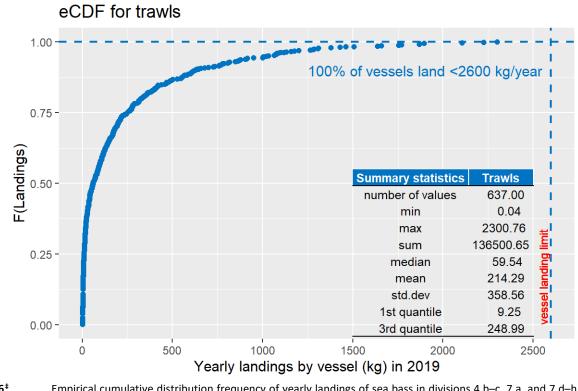
Figure 6‡   Empirical cumulative distribution frequency of yearly landings of sea bass in divisions 4.b–c, 7.a, and 7.d–h for trawl métiers.

References

EU. 2019. Regulation (EU) 2019/1022 of the European Parliament and of the Council of 20 June 2019 establishing a multiannual plan for the fisheries exploiting demersal stocks in the western Mediterranean Sea and amending Regulation (EU) No 508/2014. Official Journal of the European Union, L 172: 1–17. http://data.europa.eu/eli/reg/2019/1022/oj.

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‡ Version 2: Revision due to a correction to the yearly value for landings allowance for trawls and seines. Figure 5 and 6 and tables 4 were updated to reflect the correction.