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The Blackspot seabream Spanish target fishery of the Strait of Gibraltar: updating the available information

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Abstract

*This paper includes the available information of the Blackspot seabream (*Pagellus bogaraveo*) Spanish “voracera” target fishery of the Strait of Gibraltar. The documents presented in previous years were updated with the 2020 information: data about landings, fishing effort, CPUEs and landings length frequencies are presented to its discussion within the 2021 WGDEEP.*

1. Introduction and fishery description

Since the earlies 1980’s a Spanish artisanal fishery targeting to Blackspot seabream (*Pagellus bogaraveo*, namely “voraz”) have been developed in the Strait of Gibraltar area (ICES 9a South). This fishery has already been broadly described in previous Working Documents presented to the ICES WGDEEP (Gil *et al.*, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019 and 2020). Spanish Blackspot seabream fishery in the Strait of Gibraltar is almost a mono-specific fishery with a clear target species which represents the 74% from the total landed species which constitutes a fleet component by itself (Silva *et al.*, 2002).

In 2006, 2008, 2010, 2012 and 2016 different trials were attempted to assess this resource within the ICES WGDEEP (ICES, 2006, 2008, 2010, 2012, 2016, 2018 and 2020). Finally, 2020 scientific advice was based on abundance indexes (DLS category 3). All the available information from this target fishery (including the abundance index used as the basis for the assessment) was updated with 2020 data.

Thus, the main objective of this paper is to provide to the 2021 ICES WGDEEP a summary of the available information of this deep-water fishery located in a very narrow place in the ICES area 9 South East boundary line.

2. Material and methods

Fishery information from the sale sheets was gathered for the period 1983-2020: monthly landings, monthly number of sales (as a proxy of fishing trip) and the number of days in which those sales were carried out. Moreover, landings length distributions was also estimated from the data collected by IEO monitoring programme (Gil *et al.*, 2000).

Geo-referenced information from SLSEPA devices (a sort of Vessel Monitoring System) on the “*voracera*” fleet operating at the Strait of Gibraltar were more recently available (from 2009 onwards): this monitoring system, locally called “green boxes” (to differentiate them from the EU VMS “blue boxes”), send every three minutes to a control centre several information about the fishing boat: time, positions, course and speed. Data were filtered and analyzed, according to the protocols proposed by Burgos *et al.* in 2013, to estimate fishing effort and catch rates of the Blackspot seabream Spanish target fishery.

3. Results and discussion

- Landings data: Figure 1 shows a continuous increase of Spanish landings from the beginning of the time series to reach a maximum in 1994. Since then landings’ trend decreased till 2002, despite the peaks in 1996 and 1997. Again, it shows an increasing trend from 2003 to 2009, decreasing afterwards except for a slight increase in 2014. Landings in 2018 show the lowest values of the series, with only 8 tons landed from the Spanish “*voracera*” fleet.

Until now, discards can be assumed to be zero or negligible. However, the established minimum landing size of 33 centimeters for the species (both for NE Atlantic and Mediterranean Sea) and the landing obligation (EU Regulation 2013/1380) don’t might have an effect on the discards of this target fishery because its high survival exemption.

Hence landings are currently being used as a proxy of catches. However, it should be noted that not all the Spanish catches/landings come exclusively from ICES area 9 but they are considered from the same stock unit because the fishing area (Strait of Gibraltar) is placed between different Advice bodies/Regional Fisheries Organizations (ICES, GCFM and CECAF) boundaries.

Data from Moroccan longliners fishing Blackspot seabream in the Strait of Gibraltar area are available since 2001. The information are available on FAO GFCM statistics (WGSAD-SAC and SRC-WW) so, when possible, it is included in the WGDEEP landings estimates because

Moroccan boats target the same population sharing the main fishing grounds with Spain (ICES, 2016).

- CPUEs: Nominal abundance index shows ups and downs throughout the historical series (Figure 2). It is important to emphasize that the effort unit chosen (number of sales) may not be appropriate as does not consider the missing effort. So in the most recent years, when the resource is not quite abundant, the missing effort might increase substantially (fishing boats with no catches and no sale sheet records). Therefore, the LPUE trend since the first fishery's decline (1997) should be interpreted with caution because it cannot be a real image of the resource abundance. A severe decreasing trend is observed since 2010, whereas it increases in the last two years (2014 and 2015), similarly to landings. But, like in landings in 2016 - 2018 the signal fall again and start recovering since then.

Table 1 updates the available information from regional VMS (SLSEPA), following the data compilation and its process described by Burgos *et al.* in 2013.

Table I. Estimates of fishing effort and CPUEs (2009-2020) from the “*voracera*” fleet targeting Blackspot seabream based on regional VMS (SLSEPA) and fishery statistics (sales sheets).

Data source		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
VMS	Landings (k)	459,010	274,882	190,786	79,163	37,799	94,261	137,344	73,508	24,716	4,402	4,825	1,579
	No. Sales	7,200	5,863	4,711	2,946	2,086	2,989	3,079	1,873	1,017	309	248	62
	Fishing days (fishing trips)	8,373	7,238	6,160	3,686	2,695	4,191	4,234	2,724	1,740	1,046	607	125
	CPUE 1 (landings/No. sales)	64	47	40	27	18	32	45	39	24	14	19	25
	CPUE 2 (landings/fishing days)	55	38	31	21	14	22	32	27	14	4	8	13
	Missing effort	14	19	24	20	23	29	27	31	42	70	59	50
TOTAL	Landings (k)	579,140	316,365	239,790	126,006	66,159	137,623	166,440	99,726	42,991	7,633	18,693	12,838
	No. Sales	8,892	6,932	5,659	3,638	2,222	3,527	3,384	2,418	1,308	429	794	525
	CPUE 1 (landings/No. sales)	65	46	42	35	30	39	49	41	33	18	24	24

CPUE 1 (nominal) estimated from total landings and number of sales decreased in the period 2009-2013 from 65 to 30 k fishing trip⁻¹ for the total “*voracera*” fleet as well as the (nominal) CPUE 1 for the fleet equipped with the SLSEPA device (64 to 19 k fishing trip⁻¹). Afterwards, it increases till 49 and 45 k fishing trip⁻¹ in 2015, respectively. As expected, CPUE 2 (landings/fishing days), where the effort is estimated from the VMS device also declined with lower values than CPUE 1 because the fact of the missing effort. So, as expected, 2009 - 2019 CPUEs estimates from VMS analysis shows the same trend but lower values than the nominal one, from sale sheets (Figure 2).

- Length frequencies: The mean length of landings seems to have decreased in two different periods: from 1995 to 1998 and from 2009 to 2013 (Figure 3). Knowledge about the geographic and bathymetric distribution related to length of the species is scarce. Last years'

median value is quite stable and above the 33 cm minimum reference size for this species in the Atlantic and Mediterranean European waters.

4. Main conclusions

The general trend for the time series of both, landings and CPUEs, continues showing a decreasing pattern during the last years, exhibiting the lowest values of the whole series in 2018. This might be a consequence of an overexploitation status of the stock, which is addressing the fishery into a critical situation.

It should be noted that GFCM started a work plan to establish a management plan for this target fishery in 2019 (Recommendation GFCM/41/2017/2 on the management of blackspot sea bream fisheries in the Alboran Sea, geographical subareas 1 - 3, for a two-year transition period).

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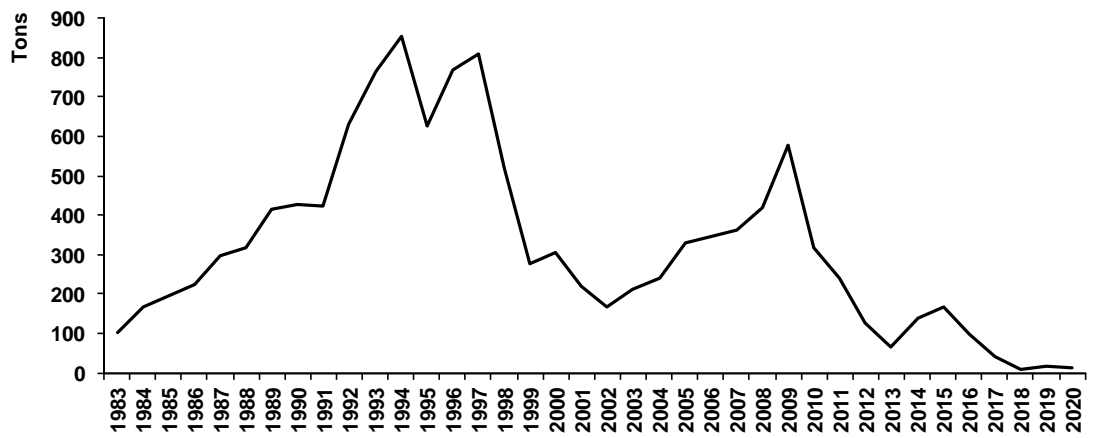


Figure 1. Blackspot seabream Spanish “*voracera*” fishery of the Strait of Gibraltar: total landings in tons (1983-2020).

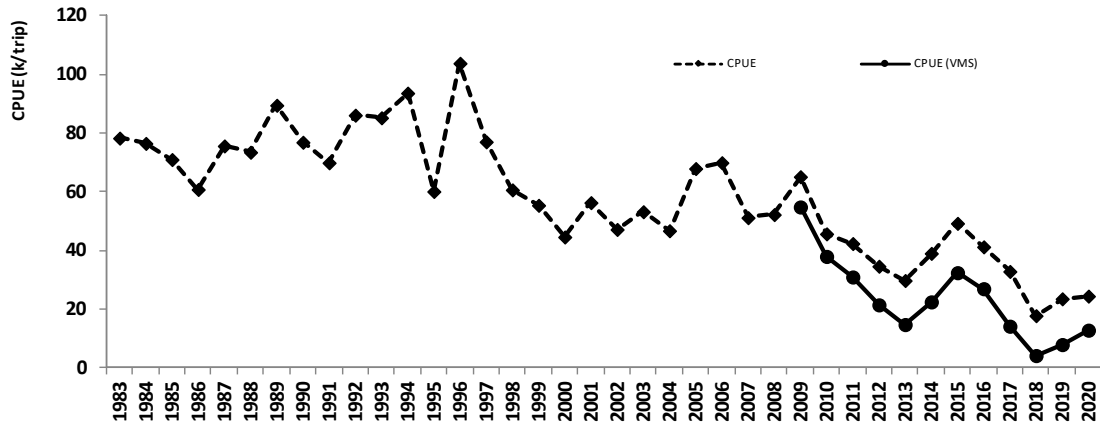


Figure 2. Blackspot seabream Spanish “*voracera*” fishery of the Strait of Gibraltar: sale sheets CPUE (1983-2020) and VMS CPUE (2009-2020).

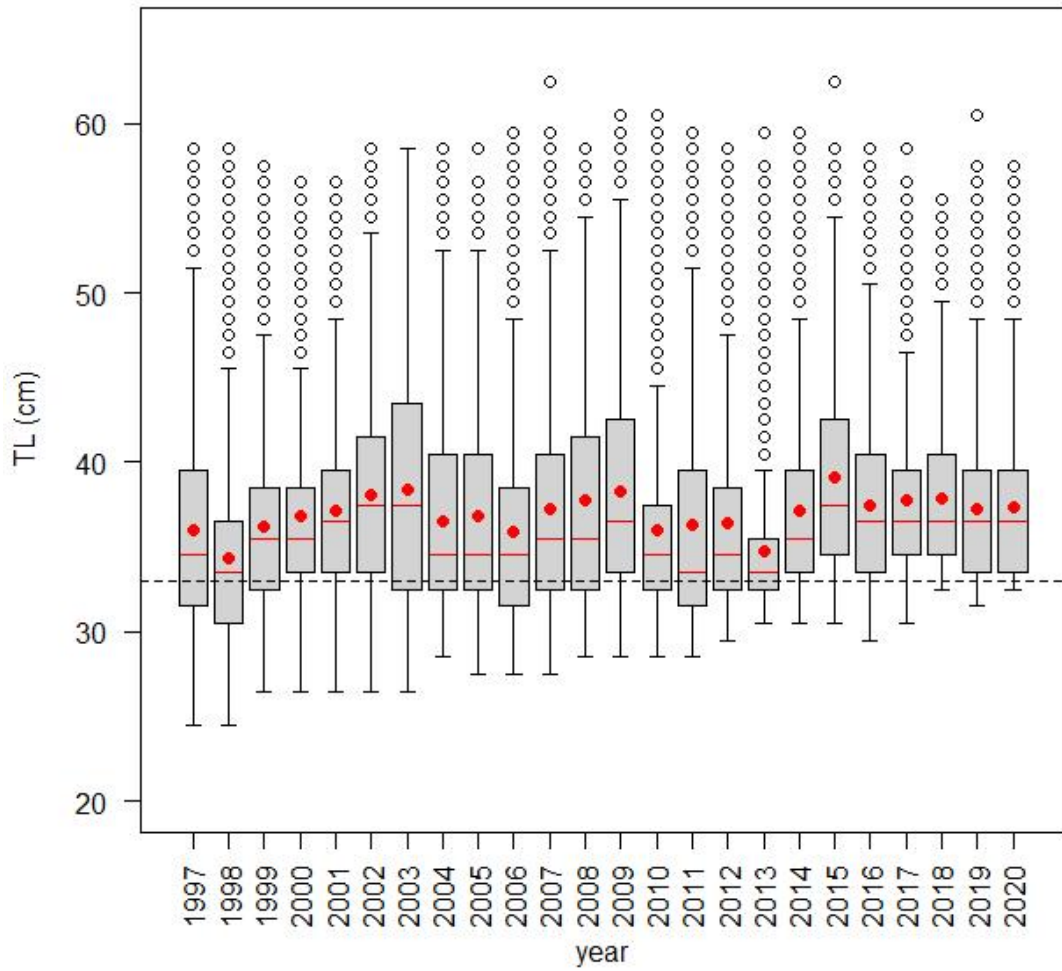


Figure 3. Blackspot seabream Spanish "voracera" fishery of the Strait of Gibraltar: 1997 – 2020 landings length distribution descriptive statistics (red dot: mean value, red line: median value, box and whiskers: Interquartile Range plus Q_1-3IQR and Q_3+3IQR , circles: outliers).