

**Updating the information about the Red seabream (*Pagellus bogaraveo*) Spanish fishery in
the Strait of Gibraltar (ICES Subarea IX).**

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Abstract

This paper presents the available information of the Red seabream fishery in the Strait of Gibraltar and updates the documents presented in previous years with the information from the last analyzed year, 2011. The document presents data about landings, LPUE, length frequencies and also biological matters which should be useful for considerations about the fishery.

1. Introduction and fishery description

Since the early 1980's an artisanal fishery targeted to the red seabream (*Pagellus bogaraveo*, namely "voraz") have been developing along the Strait of Gibraltar area (ICES IXa south). This fishery has already been broadly described in previous Working Documents presented to the ICES WGDEEP (Gil *et al.*, 2000; Gil & Sobrino, 2001, 2002 and 2004; Gil *et al.*, 2003, 2005, 2006, 2007, 2008, 2009, 2010 and 2011). Spanish red seabream fishery in the Strait of Gibraltar is almost a monospecific fishery with one clear target species which represents the 74% from the total landed species which constitutes a fleet component by itself (Silva *et al.*, 2002).

The Instituto Español de Oceanografía (IEO) began the study and the fishery monitoring following the request from the Fishermen Corporations. In 2006, 2008 and 2010 assessment trials were attempted within the ICES WGDEEP (ICES, 2006, 2008 and 2010).

The main objective of this paper is to provide an updated summary of the current status of knowledge on the fishery and biology of this deep-water species in ICES area IX at the 2012 ICES WGDEEP meeting.

2. Material and methods

Fishery information was gathered for the period 1983-2011 from the sale sheets: monthly landings, monthly number of sales and the number of days in which those sales were carried out in this species main landing ports of the Cádiz province (Tarifa, Algeciras and Conil).

Moreover, from the beginning of the IEO monitoring, June 1997, an *ad hoc* monthly length samplings from the 4 different commercial categories are carrying out in the port of Tarifa to estimate the landings length distribution (Gil *et al.*, 2000). Biological parameters were analyzed throughout 2003 to 2009 monthly samples from the “*voracera*” fleet landings (Gil *et al.*, 2010).

3. Results and discussion

- Landings data: Figure 1 shows a continuous increase of the landings to a maximum in 1994. Landing Ports included are: Tarifa Algeciras and Conil. Since 1994 landings have gone decreasing, except in 1996 and 1997, till arise the lowest value of the recent years in 2002. Then, from 2003 onwards it shows an increasing trend till reached the highest value of the last years in 2009, followed by a new decrease the last two years, which confirm that there’s still no scientific reasons for guarantee the sustainability of the recent landings increase in this fishery (till 2009). Figure 2 shows a sort of fishery footprint from the information obtained with the observers on board programme finished in 2009 (Gil *et al.*, 2010). Fishing grounds are located at both sides of the Strait of Gibraltar and quite close to the main ports (Tarifa and Algeciras).

- LPUEs and CPUEs: Fishing effort increases too till 2009 and then decrease again (Figure 3). It is important to emphasize that the effort unit chosen (number of sales) cannot be too appropriate as do not consider the missing effort. Thus, in those years when the resource is not so abundant the missing effort should increases substantially (fishing vessels with no catches, so no sale sheet were recorded). Taken in account this fact, the recent LPUE fall even could be underestimated, so should be interpreted with caution because it cannot be a real image of the resource abundance.

- Length frequencies:

The fishery resource suffers a decrease of the landed mean length (Figure 4) mainly from 1995 to 1998. Still necessary to point out that species probably does not have a homogeneous geographic and bathymetric distribution related to their length. This fact could explain the different landed mean length between the main landing ports (Tarifa, Algeciras and Conil). The mean length of the landings gets progressively increasing from 1999 onwards, but along the last years the trend varies increasing again from 2006 on in both ports. However the median value from these years remains under the mean in every case and close to the minimum landing size in Algeciras. The mean length from two landing ports (Algeciras and Conil) became lower in 2011 and their median value is below the minimum landing size.

- Biological information: No new biological information is available. Table 1 presents the update recapture figures from the several tagging surveys. Figure 5 shows the species sex-ratio (males, females and hermaphrodites) from 2005 to 2009 biological samplings, according to the in Benchmark Working Group in 2010 (WKDEEP). Sex-ratio changes by length are the result of the species hermaphroditic features: the smallest specimens are mainly males, and then an important part of individuals change its sex and became females. The functional sex (male or female) determination is easier in larger samples, even came from non spawning season (where the gonads are non functional).

4. Conclusion

Unfortunately Figure 1 is clear enough. The absence of the fishery sustainability evidence in previous years became now in a proven fact. From 2005 till 2009 landings increase every year, exceeding the fishing plans TAC. Landings and median length decreasing in the last two years (2010 and 2011) remember a recent and similar history in the middle 1990s. Besides, recent Morocco catches from the same fishing area increase the figures but not the trend.

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Table I. Red seabream Spanish fishery of the Strait of Gibraltar: Tagging surveys main figures.

Tagging survey	Fish tagged	Recaptures	Recaptures (%)	Mean length (cm)	Mean weight (gr)
Estepona 97	1591	117	7.35	20	121
Sotogrande 98	1785	18	1.01	19	100
Tarifa 01	979	178	18.18	34	585
Tarifa 02	624	22	3.53	35	681
Tarifa 04	942	32	3.40	30	411
Tarifa 06	1225	107	8.73	32	505
Conil 06	279	31	11.11	33	594
Conil 08	450	13	2.89	30	428
Total	7875	518	7.03	29	428

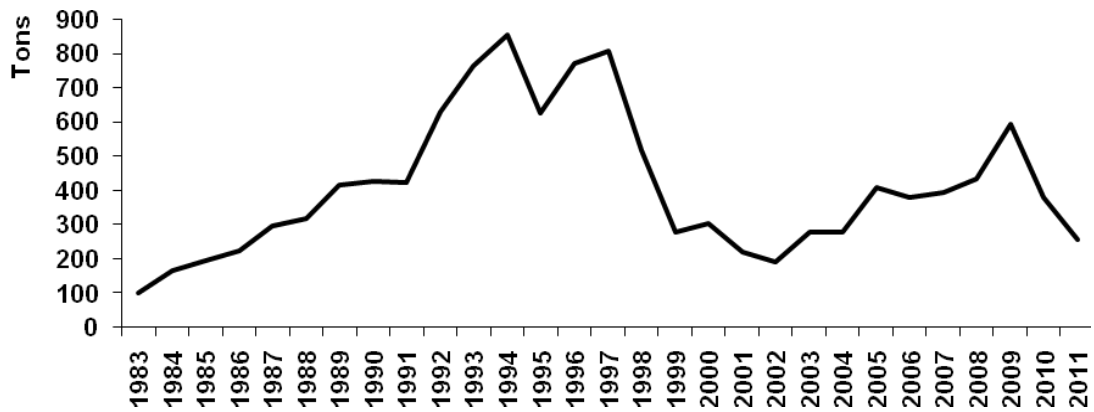


Figure 1. Red seabream Spanish fishery of the Strait of Gibraltar: Landings (1983-2011).

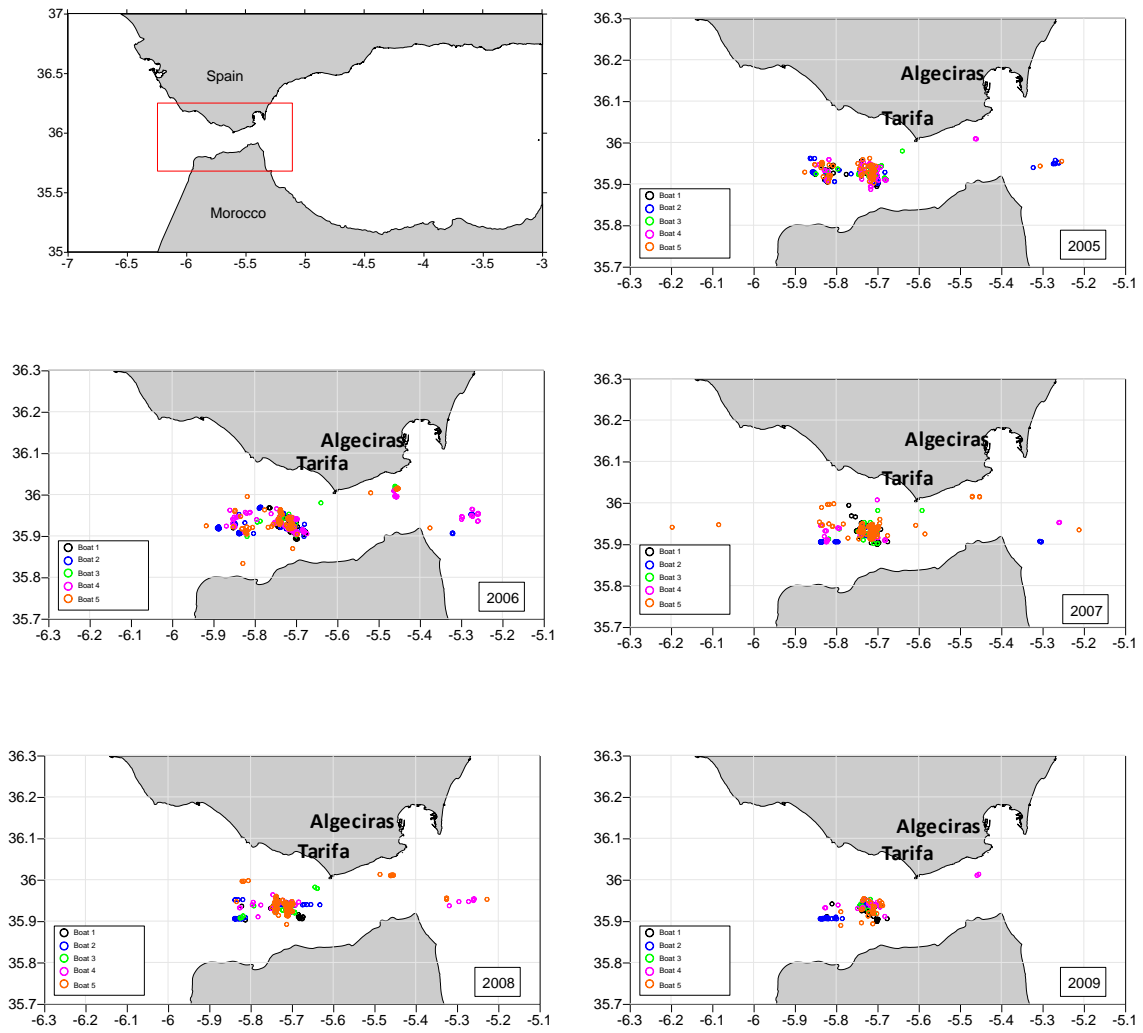


Figure 2. Red seabream Spanish fishery of the Strait of Gibraltar: Yearly soaking positions footprints from observers on board programme (2005-2009).

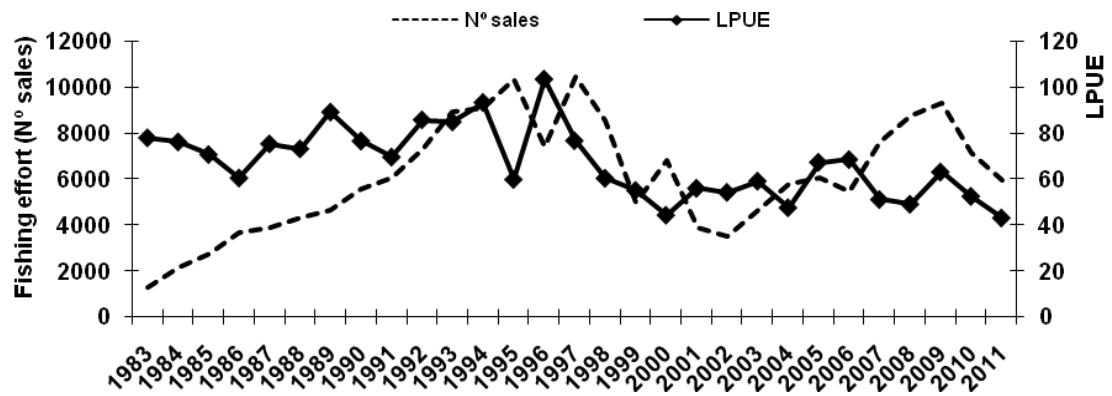


Figure 3. Red seabream Spanish fishery of the Strait of Gibraltar: Evolution of the chosen effort unit and estimated LPUE (1983-2011).

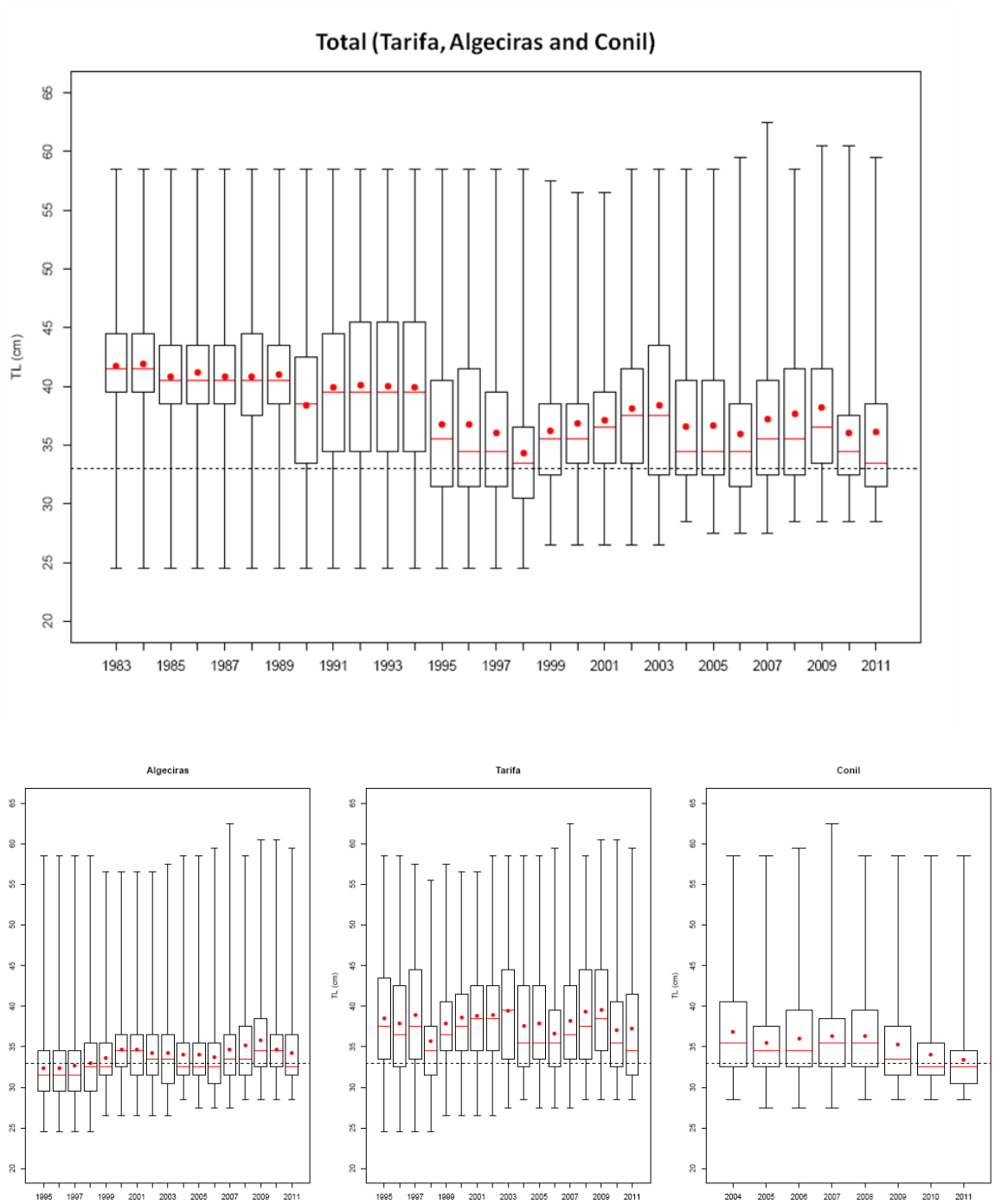


Figure 4. Red seabream Spanish fishery of the Strait of Gibraltar: Evolution of the landings length distribution descriptive statistics.

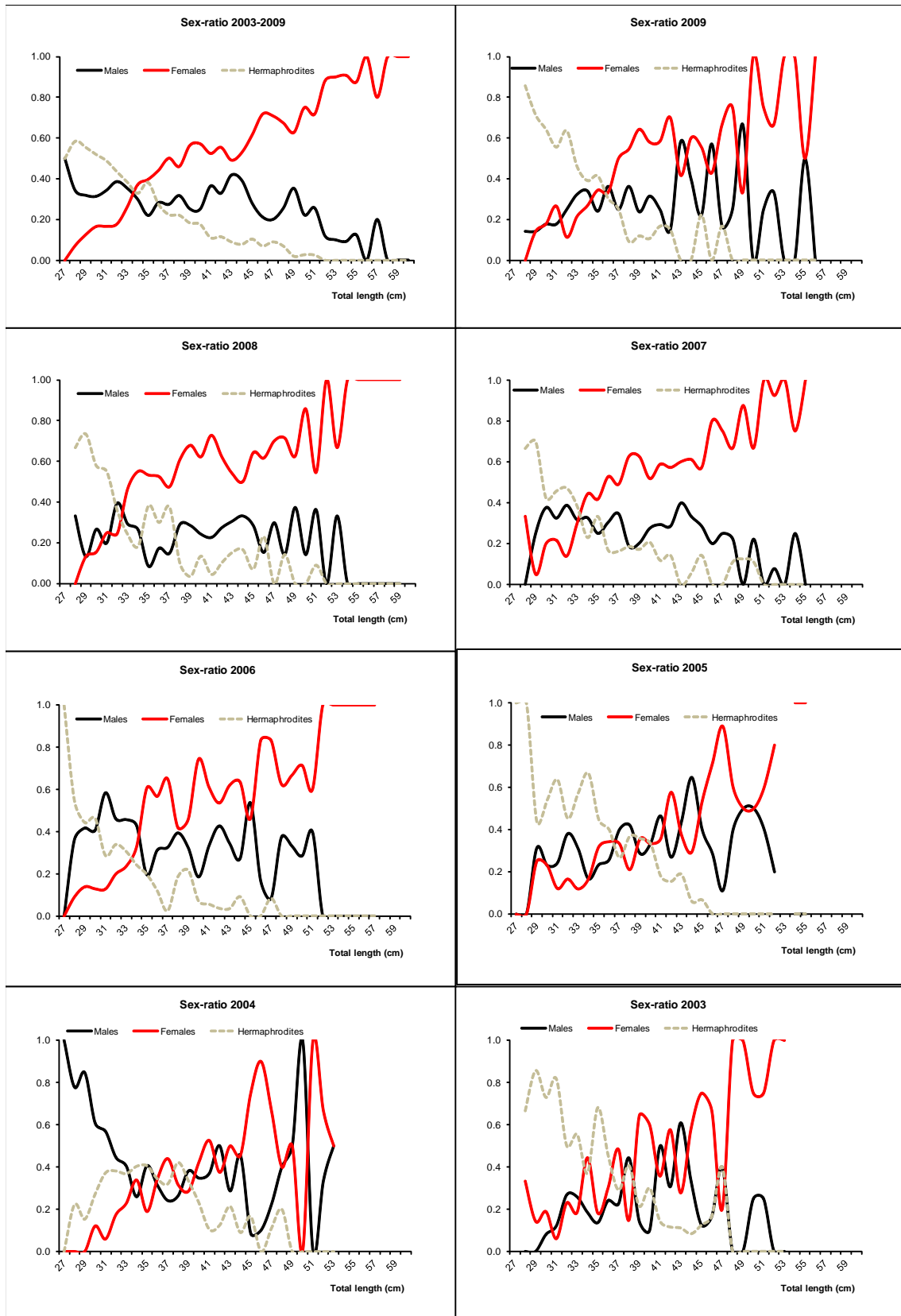


Figure 5. Red seabream Spanish fishery of the Strait of Gibraltar: Yearly and total sex-ratio from 2003 to 2009.