



CopeMed II - MedSudMed Workshop on Fisheries and appraisal of *Coryphaena hippurus*

05-06 July 2011

Palermo, Italy

State of the Dolphinfish (*Coryphaena hippurus* L.) fishery in Majorca Island during 2003-2010

A.M. Grau¹ & J. A. Camiñas²

Introduction

This report presents the existing information on landings of the artisanal fisheries targeting Dolphinfish (*Coryphaena hippurus*) in Majorca Island (Spain) by month, during the period 2003-2010, according to official data provided by the Fisheries Directorate from the Balearic Islands (Govern Balear). The Fishing Aggregation Devices (FADs), called “capcers” in Majorca, are deployed in August 25th and are retired in November 30th. The other captures included in the report correspond to other gears.

At regional Mediterranean level, Recommendation GFCM/2006/2, in order to protect small fish exploited by fleets flying the flag of the Member States, established a closed season from January 1st to August 14th each year, for the Dolphinfish fisheries using anchored FADs in all geographical subareas.

The fishery

Information transcribed hereafter on the Majorca Dolphinfish fishery is mainly based on the 2003 CORY Program report (FAO/COPEMED, 2003). A traditional small-scale fishery is carried out in the western part of the Mediterranean along Majorca Island during summer-fall using FADs and directed to the epipelagic species *Coryphaena hippurus*. This fishery is relevant in central and western Mediterranean, both by the amount of catches (Malta), or by the seasonality allowing rotating target species. Moreover, the species is relatively highly priced (Morales-Nin et al. 1999). In Majorca, the artisanal fishery targets Dolphinfish and additional captures (<5% total captures) of Pilot fish (*Naucrates ductor*) and juvenile Greater amberjack (*Seriola dumerili*) with a traditional system called “llampuguera”.

Each boat has a mooring area that is granted at the beginning of the season between the artisanal boats interested on (from 28 to 38 boats in the last ten years in Majorca). In Majorca they are placed off 35m depth and can reach the 1200m isobath. The “capcer” consists of a float with some palm grounds or bush branches tied on top for location and

¹ Fisheries Directorate from the Balearic Islands (Govern Balear) Palma de Majorca, Spain.

² CopeMed II project. FAO-FIRF. Pº de Sancha 64. Subdelegación del Gobierno, Office 305. 29071 Málaga, Spain



below to increase their surface. The characteristics of the artisanal boats targeting Dolphinfish in Majorca are summarised:

Majorca	Length	GTR	Kw	Number
	8.3	5.6	64	45

Source:COPEMED, 2003.

According to data provided by the Govern Balear, the fleet using “llampuguera” during the reference period varies from 28 (2005) to 38 (2008) boats, as it is indicated in “Table 1”.

Year	2004	2005	2006	2007	2008	2009
Nº boats	36	28	34	30	38	38

Table 1: Number of boats using “llampuguera” during the period 2004-2009.

FADs are placed in lines and in some areas there are more than one line by boat. The number of FADs moored by each boat depends on the country and also on the location of the mooring line. The average FADs /boat in Majorca are 30-40. From the data available on Majorca it is known that an important number of FADs is lost during the fishing season (up to 70%). Replacement takes place indicating that the number of FADs deployed at a given moment could be quite variable.

The net used is a special surrounding net without a purse-line, which is not very deep and almost rectangular. The design of the net, with a central cod-end with the shape of a spoon and two lateral wings, make it possible to retain the shoal of fish when the two wings are hauled up from the boat at the same time. The Majorcan net in average has a 180 m length and 16 m height.

The real effort in number of hauls (“bol” in fishermen argot) /day is unknown because they use from 1 to several dozens of “bol” every day.

Data sources

Data source in Majorca are the notes of first selling generated at the Palma de Mallorca landing port (lonja), the only official place where all the captures of the island are sold. Every note corresponds to a single authorised vessel, so the level of aggregation is species/vessel/day of landing.

Trends in capture production

Landings (in Kg) by months and total annual during 2002-2010 are summarised in “Table 2”.



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	TOTAL
2002	0	0	0	9	16	77	86	743	53499	44838	7356	483	107107
2003	1	0	0	0	0	0	27	3162	79313	69994	22217	1902	176617
2004	0	0	0	0	0	19	28	2511	84286	47002	18798	71	152715
2005	0	0	0	1	0	0	32	995	39217	44091	12405	803	97544
2006	0	0	0	0	0	10	75	455	38398	29324	16376	2194	86832
2007	0	0	0	0	0	1329	1782	683	36015	11133	6376	73	57391
2008	0	24	0	0	7	16	157	406	45668	40527	6958	137	93900
2009	0	0	0	0	0	0	5	3312	54850	46187	10178	8	114539
2010	20	0	0	0	0	82	287	7153	77635	59142	7985	29	152332

Table 2. Series of Dolphinfish landings by month/year in Majorca Island.

As commented, FADs are authorised only during the period August-November where the big amount of captures are accounted. The rest of the year landings reported should correspond to captures of other gears, including surface longlines landed in Majorca fishing ports.

“Figure 1” shows the monthly distribution of the landing during the main fishing period (August-November) for the whole series. The biggest captures correspond every year to September with a maximum of 84 tons in 2004 and a minimum of 36 tons in 2007. From September to December there is a trend to lower captures, with very few captures in November although the total month is included in the legal fishing period. This probably represents a real reduction of the presence of Dolphinfish in the fishing area of Majorca.

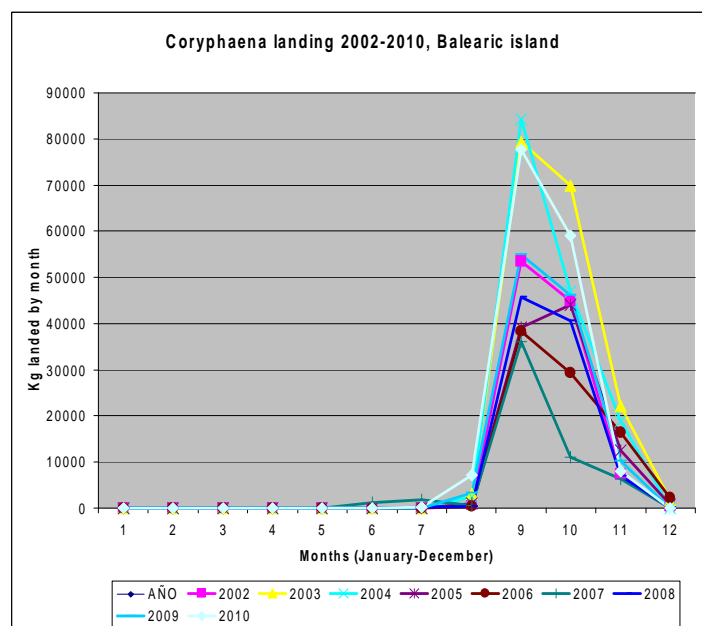


Figure 1.

Trends in annual landing (in Tons) are presented in “Figure 2”. Maximum landing corresponded to 2003 with 176,6 tons and minimum landing to 2007 with only 57,4 tons. After an important decrease in landings from 2003 until 2007, there is a recovery in the captures with a total landing of 152 tons in 2010, a similar figure than in 2003.

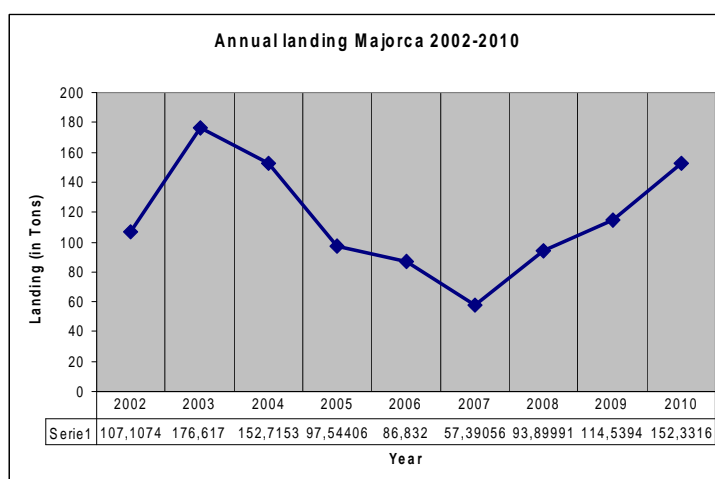


Figure 2.

Trends in landing prices

The price (€/kg) varies from 2,88 €/kg in 2004 to a maximum of 5,61€/Kg in 2007 with an important reduction from that year to 2010. The evolution of the mean price/kg during the same period is presented in “Table 3”:

Año: 2004	2005	2006	2007	2008	2009	2010
€/kg: 2.88	4.17	4.92	5.61	5.23	3.98	3.01

Table 3. Evolution of annual mean landing prices of Dolphinfish in Majorca.

As in 2009 there was a depreciation of the species price, part of the fleet promoted and adopted a quota of 300 Kg/boat/day in 2010. This reduction of the Dolphinfish price should have been also affected by the global crisis because the mean price of the landed fishes in Balearic Island during 2010 was reduced 27 % with regard to 2009.

Discussion

Dolphinfish Artisanal fisheries (Llampuguera) in Majorca capture Dolphinfish during a restricted period of the year. The fishing period is determined by legal reasons and depends on the presence in the area of the species and the availability of this resource to the FADS. Most of the fraction exploited of the Dolphinfish population is 0+ age class (Leonart et al., 1999).

Management of this species is responsibility of the fisheries administration (Govern Balear), controlling the total fleet and effort (in number of FADS by boat and limiting the fishing period) although a more tuned approach to the real fishing effort could be obtained by controlling the number of hauls (“bol”) per day and vessel.



Although this fishery is apparently in good situation³ there isn't a monitoring system for biological aspects like size/weight and sex by month. Probably establishing a system of questionnaires distributed among fishermen of selected harbours could facilitate the information on the location and number of FADs, number of hauls per day and fishing days, as previously was established during some research projects on the species.

Regular monitoring of the Dolphinfish captures by "other fishing gears" as by-catch doesn't exist and also the biological parameter of this captures are not available. A monitoring system targeting the landing of *C. hippurus* captured with all gears and during the year, could help in elaborating better information on the biology of the species and the components of the exploited stock.

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Morales-Nin et al., 1999.

³ According to a recent evaluation by the Marine Stewardship Council.