



8.5 Bay of Biscay case study

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Abstract: The case study is described in terms of some "a priori findings" that have been obtained before DiscardLess started. Moreover, the situation of the fisheries in terms of the species caught, discards data and discard sampling program is also described.

8.5.1 Brief presentation of the CS and fisheries concerned

Bay of Biscay (Figure 28) is a highly productive system. It creates the perfect conditions to multispecies trawling fleets to make use of this productivity. In particular there is a trawl fleet based in the ports of Ondarroa (Basque Country, Spain) operating in this area targeting more than 48 different species (see Annex 1 for a complete list of landings and Annex 2 for the code references in English and Spanish) and landing and selling always back in Ondarroa.



Figure 28. Case study area: Bay of Biscay

The operation of this fleet can be divided into metiers. These métiers are based on the target assemblage landed by trip, as stipulated in the Commission Decision 2008/949/EC Appendix IV footnote (b), However, this Commission decision only considered general and non-specific assemblage of species (crustaceans, cephalopods, demersal fish ...), which are not detailed enough to define the different fishing tactics followed by this fleet. Based on direct interviews with skippers, three different "group of target species" were identified; the percentage of each group within the landing is later used to allocate trips into define métiers.

A first metier, pair trawlers (PTB hereafter), use a very high vertical opening bottom trawl to target hake. The activity is constant along the year, with a slight effort reduction during summer period. Total landings reach 2293 tons in 2013, and hake landings (the main target species) 1682 tones.

A second metier, bottom otter trawlers targeting demersal species (OTD hereafter), has a constant activity along the year, with slight effort reduction during summer period. Total landings reach 2836 tons in 2013. Hake (*Merluccius merluccius*), anglerfishes (*Lophius piscatorius* and *Lophius budegassa*)





and megrims (*Lepidorhombus whiffiagonis*) are the main landed species, but there are more than 65 other landed species (pouts, dogfish, triglids...).

The third metier, bottom otter trawlers targeting mixed species (OTM hereafter) concentrates its activity during winter seasons. Total landings reached 655 tons in 2013. Squids, cuttlefish, and mullets are the main target species in this métier.

PTB is mainly landing hake. Total discards are around 15 % of the total catch. Hake individuals under minimum landing size (MLS hereafter) and pelagic species (horse mackerel, and mackerel) are the main component of the discarded catch fraction. There are both market and regulation reasons for discarding within this métier. Hake (MLS) and mackerel (quota exhaustion) are discarded due to legal reasons. Market reasons lie behind horse mackerel discards.

OTD mainly lands hake, anglerfish and megrim, but there are more than 65 other landed species (pouts, dogfish, triglids...). Total discards are around 60-65 % of the total catch. Hake individuals under MLS and pelagic species such as horse mackerel (*Trachurus trachurus*) and mackerel (*Scomber scombrus*)) are the main component of the discarded catch fraction.

OTM mainly lands squids, cuttlefish, and mullets are the main target species in this métier. However this is a very mixed métier including many other species (pout, seabass, hake...), most of them not subject to any total allowable catch (TAC) or MLS.

8.5.2 Causes of discarding

The three métiers share the same market and regulation reasons for discarding. Hake and mackerel are discarded due to legal reasons; MLS is the main reason for discarding hake and quota exhaustion for discarding mackerel. Market reasons lie behind horse mackerel discards; it has a relatively low market price and volatile (related to the freshness) in comparison with main target species.





8.5.3 Effects of discarding

There are not studies in terms of the survivability of discards on these types of vessels. Nevertheless, given the characteristics of the gears and that they are operating in the seabed, survivability can be considered to be at a very low level.

Regarding the ecological effects, again not too many studies can be found specifically related to this fishery.



However in this context we refer to Heath et al. (2014) in where unless it is stated how the subsidy effect is supposed to be low, the cascading effects in the food-web can be quite high. However, as mentioned above this result is not specific to this case study, so simulations are required to confirm any conclusion.





The economic effects are likely to be high and coming from different sources, the table below summarizes the main findings obtained for this fishery.

Table 24. Main economic effects

	РТВ	OTD	ОТМ		
Choke	-76%	-98%	-99%		
Normal Landings (value)	+3%	+32%	+18%		
MLS Landings (value)	+2%	+1.8%			
Fishing effort (cost)	0%	0%	0%		
Additional Hold Capacity	Ν	Ν	Ν		
Landing Costs	а	B OTD OTM i% -98% -99% % +32% +18% % +2.6% +1.8% % 0% 0% I N N a a % -18% -73%			
Additional crew productivity costs	-7%	-18%	-73%		

From the table above (Table 24) some conclusions can be obtained. First of all, "Choke effect" is the most important effect. This term (choke species) refers to the idea that the lowest quota in a mixed fishery constraints the opportunities of catching other stock for which quota has not been exhausted, given a certain fishing effort. The level of catches and the small quota that individually each vessel could catch implies that with an implementation of the Landing Obligation (LO), and with no further avoidance coming from the vessel fishing behavior, the number of trips would be reduced in a 76%, 98% and 99%, for the métiers PTB, OTM and OTD, respectively.

On a trip basis and given that all the catch has to be retained, is better to sell it. It implies that there will be an increment on the total turnover. This increment comes mainly from the marketable fish (before it was caught but discarded) even if there is a 2%, 1.8% and 2.6% of the income that comes from selling raw material to produce sub-products, for the métiers PTB, OTM and OTD, respectively when the price of the raw material is of $50 \notin$ /ton. Overall the income per trip is increased by a 32% for OTD and 18% for OTM. In the case of a PTB trip the increment is much more modest of around the 3%.







Given that the avoidance measures have not analyzed yet, effort changes have not been measured.

The extra holding necessities derived from retaining all the catches have been also calculated. In terms of numbers of boxes the increase estimated is of 10%, 50% and 105% for métiers PTB, OTD and OTM, respectively. There is also a necessity to store the catches that cannot be directed to human consumption in this case and additional 1 storage boxes, 4 and 8, have to be included for PTB, OTD and OTM, respectively. Nevertheless and according to the measures taken the hold capacity is not limiting the total catches, so it does not represent a constraint.

The additional landing costs come in terms of the hire cost of the storing boxes. It has been assumed that no ice is used for the conservation (on board) of the fish of catches that cannot be directed to human consumption. It has also has assumed that revenues are in terms of selling of sub-products to fishmeal. Commercial fishmeal plant supplied an average price between $50 \in$ tones to $120 \in$ tones depending on the quality (freshness and oil percentage of the raw material). The revenue that can be obtained from fish covers the 10% of the additional landing costs for PTB and around the 8% for OTD and 11% OTM in the worst case (price of raw material of $50 \in$ /ton) and 25% for PTB and 20% for OTD and 27% for OTD in the case where $120 \in$ /ton are paid.







For the case of a crew member working on a PTB trip, the extra labor productivity required is of 10%. If it were an OTD trip this extra productivity required will be of 50% and finally for an OTM trip this percentage rises to 105% of the original one. In other words, for this last case, a crew member will have to handle in each working hour two times the amount of fish than without the LO, or work two times more hours than before. In fact, it implies that this cost will become an expense due to the necessity of recruiting more crew members in the trips.

As seen before, in a trip under landing obligation the income is also higher (everything is retained and sold), and given the salary system (based on a percentage of the value of the landings), it implies that the remuneration will also be higher. It has been obtained how this remuneration is a 3% higher under the LO than without LO in a PTB métier trip, a 17% higher in an OTD métier and a 32% higher in an OTM métier.

Considering the extra productivity requirements and the extra income per trip the net result is that 7% of the productivity for a PTB trip will not be paid unless there is an increase in the share

of the landings value received by the crew. This values raises to 18% and 73% for an OTD and OTM trips respectively.







8.5.4 Discard data

8.5.4.1 Sampling

Discard data is collected, by observers onboard, under the Spanish Discard Sampling Program, which is funded under the Data Collection Framework (EC, 2008).

The sampling design is stratified by fleet, area and quarter. Trips are the primary sampling unit, and sample selection is non probability based; trips have been selected based on availability and suitability of the vessel.

Their use in the assessment groups is quite stock specific. For the case of the hake stock they are used and from 2015 onwards, the TAC advice is going to be provided including all the catches. For the case of megrim currently discards data are not used but steps are given on including them.

The coverage of the sampling strategy is explained in the three tables below:





Table 25 Spanish mixed otter bottom trawl (OTB_MCF_>=70) in the Bay of Biscay: number of vessels, trips, and sampling coverage.

	N	o vesso	els	No trips						
	2011	2012	2013	2011	2012	2013				
Total	11	9	8	129	162	62				
Sampled	4	6	1	7	11	1				
Sampling coverage (%)	36%	67%	13%	5,4%	6,8%	1,6%				

Table 26. Spanish pair bottom trawl in the Bay of Biscay: fishing units*, landings, trips, and sampling coverage.

	No	o vesse	els*		5	
	2011	2012	2013	2011	2012	2013
Total	5	5	3	295	166	174
Sampled	2	3	3	8	8	10
Sampling coverage (%)	40.0	60.0	100	2.7	4.8	5.7

*refers to fishing unit (two vessels). If one of the vessels has been replaced, a new unit has been considered.

Table 27 Spanish demersal otter bottom trawl in the Bay of Biscay: number of vessels, trips, and sampling coverage.

	N	o vess	els	No trips						
	2011	2012	2013	2011	2012	2013				
Total	9	9	8	124	102	254				
Sampled	4	2	4	7	3	12				
Sampling coverage (%)	44%	22%	50%	5,6%	2,9%	4,7%				





8.5.4.2 Discard rates and levels

Table 28. Spanish OTD in the Bay of Biscay: discards and catches

	Dis	cards	(T)	Catch (T)						
Species	2011	2012	2013	2011	2012	2013				
Horse mackarel	1096	633	782	1160	758	903				
Mackerel	1218	102	898	1235	127	907				
Hake	100	60	194	153	224	499				
Blue whiting	61	77	191	62	81	192				
Black-bellied angler	5	2	10,	96	110	353				
Megrim	5	1	8,	112	138	249				
Anglerfish	3	0	5	114	70	205				

Hake, anglerfish and megrim are the main landed species, but there are more than 65 other landed species (pouts, dogfish, triglids...). Total discards are around 60-65 % of the total catch. Hake individuals under MLS and pelagic species (horse mackerel and mackerel) are main component of the discarded catch fraction. A wide range of other species complete the rest of the discarded fraction, some of them under TAC regulation (blue whiting, anglerfish, etc), but most of them not subject to quotas.

Table 29. Spanish OTM in the Bay of Biscay: discards and catches

	Dis	cards	(T)	Catch (T)						
Species	2011	2012	2013	2011	2012	2013				
Horse mackarel	1834	1243	568	1843	1297	578				
Mackerel	1737	1477	85	1796	1486	85				
Hake	80	157	64	124	213	83				
Blue whiting	45	39	0	45	40	0				
Black-bellied angler	6	1	0	20	59	27				
Megrim	0.2	0	0	8	0	9				
Anglerfish	0.1	0.4	0.2	60	78	19				





Squids, cuttlefish and red mullet are the main landed species, but there are more than 60 other landed species (pouts, hake, monkfish...). Total discards are around 65-70 % of the total catch. Pelagic species (horse mackerel and mackerel) are main component of the discarded catch fraction. Hake individuals under MLS are also discarded. A wide range of other species complete the rest of the discarded fraction, some of them under TAC regulation (blue whiting, anglerfish, etc.), but most of them not subject to quotas.

	Di	scards ('	Г)	Catch (T)						
Species	2011	2012	2013	2011	2012	2013				
Horse mackarel	118,70	215,05	116,98	223,7	262,0	136,9				
Blue whiting	10,81	322,87	34,66	143,2	367,2	90,0				
Whiting	0,00	0,00	0,00	55,6	71,9	48,2				
Hake	37,41	91,77	106,53	2638,9	1963,8	1787,5				
Anglerfish	0,00	0,00	0,00	23,0	30,0	30,1				
Black-bellied angler	0,36	0,00	0,00	30,9	46,2	35,2				
Mackerel	384,09	41,25	6,68	696,7	80,2	43,1				

Table 30. Spanish pair bottom trawl in the Bay of Biscay: discards and catches

Hake is the main landed species, but other demersal species are also landed to a lower degree (anglerfish, whiting, squids, etc.). Total discards are around 15 % of the total catch. Hake individuals under MLS and pelagic species (horse mackerel, blue whiting and mackerel) are main component of the discarded catch fraction. Other species not regulated by TAC complete the rest of the bycatch (landed and discarded).

Figures 2 and 3 represent the idea of an average trip in where the catches and the discards level are estimated by trip (Figure 29) and the "type" of these discards (MLS or other) (Figure 30).









Figure 29. Catches and discards by average trip by the three main species discarded.



Figure 30. Types of discards according to the minimum landing size (MLS): 27cm for hake, 20cm for horse mackerel and 15cm for mackerel.





8.5.5 Ecosystem modelling of the Bay of Biscay

The Ecopath model covers the French part of the Bay of Biscay, i.e. the Continental Shelf covered by ICES Divisions VIII a and b. It is a modification of the one published by Lassalle et al. (2011), where the functional groups and fisheries used (Table 31 and Table 32respectively) have been slightly modified to better match the requirements of this case study within the project. Figure 28 shows the study area. The main spanish fishery operating in this area is the trawling fleet based in the ports of Ondarroa, which is the focus fishery of this study. The operation of this fishery is divided in metiers (EC, 2008), and three metiers have been identified depending on the group of target species : pair trawlers (PTB), bottom otter trawlers targetting demersal species (OTD) and bottom otter trawlers targeting mixed species (OTM). An additional fishery has been included , called 'others (OTH)' representing a non-real fishery to somehow simulate the activity of other existing fisheries and aiming to account for the total landings and discards produced in the study area. The species each of these fisheries are targeting (only for the focus fishery) are shown in Table 32, along with the ones discarded and the identified choke species (Schrope, 2010). In this choke species list only the species that will become choke species with a higher probability have been included for each fishery.

	Group name		
1	Pursuit divers seabirds	18	Sprat
2	Surface feeders seabirds	19	Benthic cephalopods
3	Striped dolphins	20	Pelagic cephalopods
4	Bottlenose dolphins	21	Carnivorous benthic invertebrates
5	Common dolphins	22	Necrophagous benthic invertebrates
6	Long-finned pilot whales	23	Sub-surface deposit feeders invertebrates
7	Harbour porpoises	24	Surface suspension and deposit feeders inv
8	Hake	25	Benthic meiofauna
9	Monkfish	26	Suprabenthic invertebrates
10	Megrim	27	Macrozooplankton
11	Blue whiting	28	Mesozooplankton
12	Small hake	29	Microzooplankton
13	Benthivorous demersal fish	30	Bacteria

Table 31: Funtional groups included in the EwE model-based





14	Mackerel	31	Large phytoplankton
15	Horse mackerel	32	Small phytoplankton
16	Anchovy	33	Discards
17	Sardine	34	Detritus

Table 32: Main targeted and chocke species of the PTB, OTD and OTM.

	Target species	Discarded ¹ species	Choke species
PTB	Adult hake	Horse Mackerel Blue whiting Mackerel Small hake (<mls) Anglerfish</mls) 	Hake Mackerel Horse Mackerel Blue whiting
OTD	Adult hake Anglerfish Megrim Others	Mackerel Horse Mackerel Small hake (<mls) Blue whiting Anglerfish Megrim</mls) 	Hake Mackerel Horse Mackerel Blue whiting
ОТМ	Squids Cuttlefish Mullets Others	Mackerel Horse Mackerel Small hake (<mls) Blue whiting Anglerfish Megrim</mls) 	Hake Mackerel Horse Mackerel Blue whiting

¹ Discarded and subject to a total allowable catch (TAC) or minimum landing size (MLS).

Discarding is included in the model sinde it may affect trophic and population dynamics. Discards are part of the total catched in the Ecopath model ; total catches are calculated as sum of total landings and discards of each fishery in the model. The model needs to be told what to do with the discards entered as part of the catches, so the Discard fate needs to be introduced. This parameter represents the fraction of discards (between 0 and 1) which flows to a given detritus group or is exported. Another particularity of the model is that it includes a functional group called discards (see Table 31), which is introduced to better account for the ecological impacts of discarding in the ecosystem.

8.5.6 References





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ANNEX 1: Landings by species and métiers in 2013.

	MON	MGR	MEG	MAS	MAC	LIN	LDB	Jod	НОМ	HKE	HAD	GUX	GFB	GAD	EOI	CTL	СТВ	CRE	COE	BSS	BRF	BLL	BIB	ARY	ANK		
																										ene	
	1404		5453			10	1353	242	584	4663		755		3308	4536	2146			802	1411			361	5100	1972		
	824		3454				841	275		2138		1094		1955	2096	3319			1034	559			349	3566	978	feb	
	1136	33	4284			46	1054	1248	224	3932		3391		1298	3125	3820			1422	374			412	1520	2388	mar	
	1585		15363			63	782	1319	1006	3926		1264		1655	4278	493		571	439	64		ы		2992	6402	abr	
	924		10155			9	450	915	420	5280		1675		1364	2362			219	250			9	177	2569	9062	may	OTB
	618		10989			48	1855	835	2346	3914		3213		2635	1357				270				355	1413	7128	jun	
	1137		1189			34	10000	540	628	4497		4986		4504	511			1270	1577				794	5642	7795	sep	
	858		770			41	5549	414	852	2723		3228		2417	670	415	78	-	619	940		ы	737	5028	5254	oct	
	43	743	20				221	17	132			38		967	46	700	86		868	422				134	143	nov	
WW	1159	64	275				1081	1018	136	2513		1647		3193	317	2513	4		582	1072			189	6239	5505	dic	
w.di																										feb	
scar	537		2243			13	19	11		2747		372		2676	1066	933			508	7974			223	3618	986		OTM
dless	448	213	75				85	102	3144	2136		143		3242	75	8190	189		1179	720		4		629	893	nov	
s.eu																										ene	
	1881		271		17208	12	37	786	1171	44814		2410		1702		2617			519	2498		71	330	14	1961		
	345		19			81	0	1238	1055	97623	11	203	113	171	8	364			116	173	10		125	105	524	feb	
	217					21		506	436	230308		612	205	55	ы	066			268	76	82		83	35	93	mar	
	12					ų		82	134	22957	ω ω	29	25	13					8		13:		1	18	8	abr	
	9 7					4		5 24	7 6	5 1585	6	7 10	6	0 12					1 2		2		1 1	7	9 5	may	
	07					14		51 1	31 1	81 161		64		26	11	23			05				17	23	23	jun	PTB
	256					2		.268	729	.322 11		551	17	393					41				65	17	373	ju	
	124		6	12			0	608	758	32355		1558	7	930					43				244		1088	-	
	116					9		912	92	61720		831		231					49				34	59	470	sep	
	394					9		1601	510	119476		4022		1668		ω			160	323		2	225	80	457	oct	
	4629		1128			7	1304	646	285	81877		3272		672		47			95	351			34	26	2545	nov	
	53(18		392		14392		2963		880		3173	62		89	661		21	97		435	dic	

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VHG	WHB	WEG	UCA	TUR	TRK	SYC	SRG	SQZ	SOX	SOL	SKA	SBR	SBG	SBA	RJN	RJC	POL	PAC	OMZ	000	MUR	MUL
					332	2162		275		182					2147	223	101				491	
				7	409	2831		14		68					783	213	159				248	
94					066	4764	10	28		252					3064	696	169		46		609	
				77	1789	3403		271		92					6029	284	49		2600		1665	
				56	772	5977				82					1413	281	9		1816		2304	
				14	518	6119				288					2231	381			671		626	
						6422									3742	499	63					
634		638				4029	10	194	380		1168		42		506	17	54				333	481
266			110			241		486	1858				17					10			159	255
135		79	16	6	241	3716	ы	558	1681		843				1654	168	6				607	
35			10	4	387	1479		44	43	43					902	13					111	
498		36	95	7		1538		8529	878		445		10	27	191	32				33	2165	165
498		36	95	7		1538		8529	878		445		10	27	191	32				33	2165	165
498		36 241	95 13	7	351	1538 4821		8529 3453	878	52	445 365		10	27	191 150	32 183	46		187	33	2165 354	165
498 7	70	36 241	95 13	7	351 119	1538 4821 140		8529 3453 69	878	52	445 365 178		10	27	191 150 9	32 183 11	46 13		187 2711	33	2165 354	165
498 7	70 333	36 241	95 13	7	351 119 210	1538 4821 140 7		8529 3453 69 12	878	52	445 365 178 44	10	10	27	191 150 9	32 183 11 57	46 13 77		187 2711 1198	33	2165 354	165
498 7	70 333 1679	36 241	95 13	7	351 119 210 223	1538 4821 140 7 59		8529 3453 69 12 23	878	52	445 365 178 44 15	10 7	10	27	191 150 9	32 183 11 57 159	46 13 77 10		187 2711 1198 2933	33	2165 354 130	165
498 7	70 333 1679 97	36 241 1	95 13	7	351 119 210 223 140	1538 4821 140 7 59		8529 3453 69 12 23	878	52	445 365 178 44 15 6	10 7	10	27	191 150 9	32 183 11 57 159 42	46 13 77 10 3		187 2711 1198 2933 83	33	2165 354 130 16	165
498 7	70 333 1679 978 3	36 241 17	95 13	7	351 119 210 223 1401 1	1538 4821 140 7 59		8529 3453 69 12 23	878	52	445 365 178 44 15 63	10 7	10	27	191 150 9	32 183 11 57 159 424	46 13 77 10 37		187 2711 1198 2933 838 ;	33	2165 354 130 160	165
498 7	70 333 1679 978 3981	36 241 17	95 13	7 7	351 119 210 223 1401 595	1538 4821 140 7 59		8529 3453 69 12 23	878	52	445 365 178 44 15 63 15	10 7	10	27	191 150 9	32 183 11 57 159 424 72	46 13 77 10 37 47		187 2711 1198 2933 838 284	33	2165 354 130 160 32	165
498 7	70 333 1679 978 3981 3203	36 241 17 32	95 13	7 7	351 119 210 223 1401 595 38	1538 4821 140 7 59		8529 3453 69 12 23	878	52	445 365 178 44 15 63 15	10 7	10	27	191 150 9	32 183 11 57 159 424 72 37	46 13 77 10 37 47 54		187 2711 1198 2933 838 284 57	33	2165 354 130 160 32	165
498 7	70 333 1679 978 3981 3203 357	36 241 17 32 233	95 13	7	351 119 210 223 1401 595 38 12	1538 4821 140 7 59		8529 3453 69 12 23	878	52	445 365 178 44 15 63 15 25	10 7	10	27	191 150 9	32 183 11 57 159 424 72 37	46 13 77 10 37 47 54 14		187 2711 1198 2933 838 284 57	33	2165 354 130 160 32	165
498 7 7408	70 333 1679 978 3981 3203 357 92	36 241 17 32 233 1288	95 13	7 7 3	351 119 210 223 1401 595 38 12	1538 4821 140 7 59 189		8529 3453 69 12 23 33	878	52	445 365 178 44 15 63 15 25 23	10 7	10	27 5	191 150 9	32 183 11 57 159 424 72 37	46 13 77 10 37 47 54 14 23		187 2711 1198 2933 838 284 57	33	2165 354 130 160 32 26	165
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142





ANNEX 2: Codes

Code	Spanish name	Scientific name	English name
ANK	Rape negro	Lophius budegassa	Black-bellied angler
ARY	Peon, pez plata	Argentina sphyraena	
BIB	Faneca comun	Trisopterus luscus	Pout, Bib
BLL	Remol, Corujo	Scophthalmus rhombus	Brill
BRF	Cabra (Helicolenus dactylopterus)	Helicolenus dactylopterus	
BSS	Lubina	Dicentrarchus labrax	Bass
COE	Congrio (Conger conger)	Conger conger	Conger
CRE	Buey	Cancer pagurus	Edible crab
СТВ	Mojarra	Diplodus vulgaris	Common Two Banded Sea Bream
CTL	Sepias y chocos	Sepiidae	
EOI	Pulpo blanco	Eledone cirrhosa	Curled octopus
GAD	Fanecas spp	Trisopterus spp	Pout, Bib
GFB	Brotola de fango (Phycis blennoides)	Phycis blennoides	Greater Forkbeard
GUX	Triglidos	Triglidae	
HAD	Eglefino	Melanogrammus aeglefinus	Haddock
HKE	Merluza europea	Merluccius merluccius	Hake
НОМ	Chicharro Negro	Trachurus trachurus	Atlantic (Scad) Horse mackerel
JOD	Pez de San Pedro	Zeus faber	Atlantic John Dory
LDB	Gallo boscii	Lepidorhombus boscii	Four-spot megrim
LIN	Maruca, Juliana (Molva molva)	Molva molva	Ling
MAC	Verdel, Caballa	Scomber scombrus	Mackerel
MAS	Estornino	Scomber colias	Chub mackerel, Spanish mackerel
MEG	Gallo whiffiagonis	Lepidorhombus whiffiagonis	Megrim
MGR	Corvina	Argyrosomus regius	Meagre
MON	Rape blanco	Lophius piscatorius	Anglerfish, Monkfish
MUL	Lisas	Mugilidae	
MUR	Salmonete de roca	Mullus surmuletus	Red Mullet
000	Pulpo comun	Octopus vulgaris	Octopus
OMZ	Potas y voladores	Ommastrephidae	
PAC	Breca	Pagellus erythrinus	Pandora
POL	Abadejo	Pollachius pollachius	Pollack
RJC	Raya de clavos	Raja clavata	
RJN	Raya santiaguesa	Leucoraja naevus	Cuckoo ray
SBA	Aligote	Pagellus acarne	Axilary sea-bream
SBG	Dorada	Sparus aurata	Gilthead Sea Bream
SBR	Besugo	Pagellus bogaraveo	Red sea-bream
SKA	Rayas spp	Raja spp	Skates
SOL	Lenguado	Solea vulgaris	Sole
SOX	Soleidos	Soleidae	
SQZ	Calamares Loliginidae	Loliginidae	Inshore Squids





SRG	Esparidos		Sparidae	
SRG	Esparidos		Sparidae	
SYC	Pintarroja		Scyliorhinus canicula	Dogfish
TRK	Tolla, Musola spp		Triakidae	Tope shark, flake
TUR	Rodaballo		Psetta maxima	Turbot
UCA	Verrugato de fango		Umbrina canariensis	Canary drum
	Salvario, Escorpion,	Escarapote,		
WEG	Araña		Trachinus draco	Greater weever
WHB	Lirio, Bacaladilla		Micromesistius poutassou	Blue whiting
WHG	Merlan		Merlangius merlangus	Whiting