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# Monitoring of incidental catches of cetaceans by Dutch pelagic trawlers in 2007

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## Summary

This report contains the results of the ongoing monitoring programme on the incidental bycatch of cetaceans in Dutch pelagic fisheries under EU Council Regulation 812/2004 for the period January to December 2007. The regulation requires 10% observer coverage in ICES area's VI, VII and VIII in the period 1 December – 31 March (fleet segment A) and 5% coverage outside this area and in all areas year round (fleet segment B). In the Dutch situation the monitoring is integrated with the collection of discards data under the EC Data Collection Regulations 1543/2000 and 1639/2001.

In 2007, during 12 fishing trips, 46 days and 88 hauls were observed in fleet segment A; 158 days and 323 hauls were observed in fleet segment B. With a total number of fleet days of 2110, of which 565 in fleet segment A and 1545 in fleet segment B, the overall coverage was 9.7%, 8.1% in segment A and 10.2% in segment B.

No bycatch of cetaceans occurred. The observed bycatch rate of 0.00 dolphins per day from December 2006 to 31 March 2007, is in line with the findings in 2004/2005 and 2005/2006 when the bycatch rate was 0.05 and 0.02 dolphins/day.

Three bycatch incidents of seals occurred, one incident in segment A involved 1 specimen. In fleet segment B three seals in two incidents were recorded. The seals were not identified to species level and no further information of these bycatch incidents is available.

## Samenvatting

Dit rapport bevat de resultaten van het doorlopende waarnemerprogramma naar de bijvangst van dolfijnen in de Nederlandse pelagische visserij onder EU Verordening 812/2004 in de periode januari tot en met december 2007. De verordening vereist dat 10% van de vlootinspanning gedekt wordt in de ICES gebieden VI, VII en VIII in de periode van 1 december tot en met 31 maart (vlootsegment A) en 5% van de vlootinspanning buiten deze periode in alle gebieden het hele jaar rond (vloot segment B). In de Nederlandse situatie is het waarnemersprogramma geïntegreerd met het verzamelen van vangst- en discard-gegevens onder EU Verordeningen 1543/2000 en 1639/2001.

In 2007 zijn, tijdens 12 reizen waarnemingen uitgevoerd gedurende in totaal 46 dagen met 88 trekken in vlootsegment A; 158 dagen en 323 trekken in vlootsegment B. Met een totaal aantal visdagen van 2110 voor de gehele vloot, waarvan 565 in vlootsegment A en 1545 in vlootsegment B, was de dekking 9.7% voor de gehele vloot, 8.1 % in vlootsegment A en 10.2% in vlootsegment B.

Er werden geen bijvangsten van dolfijnachtigen waargenomen. De gevonden mate van bijvangst van 0.00 dolfijnen per dag van december 2006 tot 31 maart 2007 verschilt niet veel van de mate van bijvangst die werd gevonden in de 2004/2005 en 2005/2006 toen de het aantal bijgevangen dolfijnen per dag respectievelijk 0.05 en 0.02 was.

Er werden drie bijvangst incidenten van zeehonden waargenomen, een in vlootsegment A van een zeehond en twee in vlootsegment B, waarbij drie exemplaren werden bijgevangen. De zeehonden werden niet op soort gebracht en er zijn geen verdere bijzonderheden bekend van deze bijvangsten.

## 1 Introduction

Council Regulation No 812/2004<sup>1</sup> is obliging Member States to monitor bycatches of cetaceans in certain fisheries, certain periods of the year and in certain European Waters and to report the results of the monitoring to the European Commission. In the Netherlands, the monitoring was commissioned by the Ministry of Agriculture, Nature Conservation and Food Quality to IMARES, the former Netherlands Institute for Fisheries Research and started on 1 January 2005.

The aim of this study is to assess the incidental bycatch of cetaceans in the Dutch pelagic fisheries. This report covers the ongoing monitoring of Dutch pelagic fisheries over the period January – December 2007. Under the regulation 10% of the fleet effort in the period of 1 December till 31 March in ICES area VI, VII and VIII has to be covered ("fleet segment A"). The rest of the year with exclusion of fleet segment A, 5% should be covered, but this is not clear from the text of the EU regulations (Table 1). In the Dutch situation the monitoring is integrated with the collection of discards data under EC Data Collection Regulations: C.R. 1543/2000<sup>2</sup> and C.R. 1639/2001<sup>3</sup> amended by C.R. 1581/2004<sup>4</sup> (EC 2000) (EC 2001). The project under this regulation aims at an overall coverage of 10% in European waters.

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<sup>1</sup> Council Regulation (EC) No 812/2004 of 26.4.2004 laying down measures concerning incidental catches of cetaceans in fisheries and amending Regulation (EC) No 88/98

<sup>2</sup> Council Regulation (EC) No 1543/2000 of 29 June 2000 establishing a Community framework for the collection and management of the data needed to conduct the common fisheries policy

<sup>3</sup> Commission Regulation (EC) No 1639/2001 of 25 July 2001 establishing the minimum and extended Community programmes for the collection of data in the fisheries sector and laying down detailed rules for the application of Council Regulation (EC) No 1543/2000

<sup>4</sup> Commission Regulation (EC) No 1581/2004 of 27 August 2004 amending Regulation (EC) No 1639/2001 establishing the minimum and extended Community programmes for the

Earlier studies on the incidental bycatch of cetaceans have been reported by Couperus (1995; 1997; 2006 and 2007), covering the period 1992-1996 and 2004 - 2005. The reporting format of this report differs from the format used in previous years. During the meeting of the Study Group for Bycatch of Protected Species (SGBYC) (ICES 2008) it was decided to report in a standardized format in order to make it easier to combine national bycatch rates. A national report should therefore contain 4 specified tables, to be numbered 1 to 4. Hence the tables numbered accordingly below, are the "mandatory" tables. Some tables from the 2004/5 and 2006 reports, are now to be found in the annexes.

Table 1. Required effort by fleet segment According to EU council regulation 812/2004.

Code no. for fleet segment	Fishing area	Gear type	Season	Required coverage
a	Areas VI, VII and VIII	Pelagic trawl (single & pair)	January to March & December	10%
b	All area's fished in (part covered by segment A excluded)	Pelagic trawl (single & pair)	Year round (part covered by segment A excluded)	5%

## 1.1 Description of the fleet

An extensive description of the Dutch pelagic fleet is given in (Couperus et al. 2004). However, an important feature of the pelagic fishery is that its behaviour changes rapidly over time. These changes are caused by developments in the fish market, quota regulations and variation in the stock distribution and migration patterns over time. The number of Dutch freezer trawlers in January 2007 was 11 plus two pair-trawlers. Effort in Mauritanian waters was 18% of the total Dutch pelagic effort. This was a decrease compared to 2006 when 26% of the effort originated from Mauritania (fishing days, National logbook database). Total landings of the common targeted species (blue whiting, herring, horse mackerel, mackerel, greater argentine and pilchard) were 0.27 million ton in 2007, which is approximately the same as in the landings in 2006 (0.28 million ton). In Figure 1 the landings per month are presented.

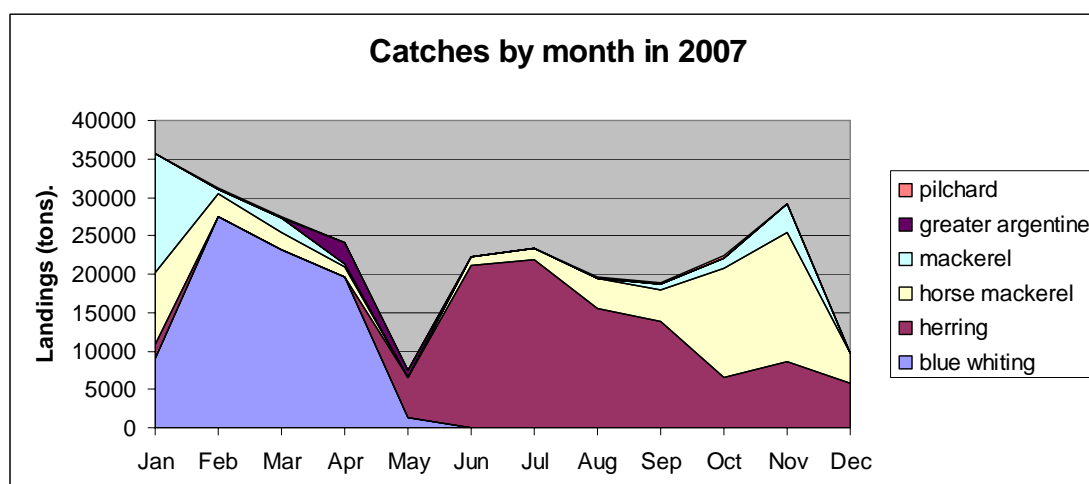


Figure 1. Registered landings from European waters by Dutch freezer trawlers in 2007.

## 1.2 Landings in 2007

The overall landings in 2007 (2110 fishing days) was almost equal to the effort in 2006 (2174 fishing days). Annex 1 shows the "fish calendar" of 2007.

## 2 Methods

### 2.1 Observer effort

The monitoring is integrated with the collection of discards data under EC Data Collection Regulations 1543/2000 and 1639/2001 (EC, 2000, 2001). In this programme the observer effort is spread quasi random over the year. Internally the observer trips are scheduled equally over the year and observers join the first trawler that comes in. However, the choice of area and target species are often last minute decisions of the owner of the vessel and may even alter during the trip itself. Therefore it is impossible to foresee or plan the exact effort in the area that has to be monitored under EC Regulation No 812/2004.

In 2007 on 12 trips an observer joined the vessel. Four trips have only partly covered the study area and period. Annex 2 provides the periods and target species covered by the trips in this observer programme.

According to the national logbook database, the number of fleet days in area VI, VII and VIII during season 2007 was 562. With 46 observer days the coverage was 8.1%. The coverage in segment B was 10.2% (Annex 3).

### 2.2 Registration of bycatch

For each tow, the observer was present on the bridge during shooting and hauling. Position and time were noted at the beginning of each haul. The time was noted again when hauling started. The rear window of the bridge gives a good view on the rear deck, so that possible bycatch of cetaceans can be recorded from there. Of any bycatch, length and sex must be recorded. In the case of cetacean bycatches, and if the crew agrees, the animals are labeled and frozen for further examination at the institute.

(maar dit is hypothetisch want er waren geen bijvangsten)

Table 2. Fishing effort and sampling effort by fleet segment And ICES subarea.

fleet segment	ICES subarea	Fishing effort of the national fleet					Sampling effort achieved					coverage%
		no vessels	no of trips	days at sea*	no of hauls	fish hours	no of vessels	no of trips	days at sea*	no of hauls	fish hours	
b	IIA	ni	ni	146	ni	ni	2	2	41	47	166	28.1%
b	IVA	ni	ni	383	ni	ni	3	5	67	147	470	17.5%
b	IVB	ni	ni	89	ni	ni	2	2	10	23	61	11.2%
b	IVC	ni	ni	104	ni	ni	0	0	0	0	0	0.0%
b	VB	ni	ni	11	ni	ni	0	0	0	0	0	0.0%
a	VIA	ni	ni	153	ni	ni	1	1	13	27	190	8.5%
b	VIA	ni	ni	270	ni	ni	3	4	34	100	474	12.6%
a	VIB	ni	ni	29	ni	ni	1	1	3	5	29	10.3%
b	VIB	ni	ni	0	ni	ni	1	1	1	1	4	??
a	VII B	ni	ni	46	ni	ni	2	2	8	17	45	17.4%
b	VII B	ni	ni	99	ni	ni	1	1	5	5	14	5.1%
a	VII C	ni	ni	145	ni	ni	0	0	0	0	0	0.0%
b	VII C	ni	ni	2	ni	ni	0	0	0	0	0	0.0%
a	VII D	ni	ni	81	ni	ni	2	2	11	20	28	13.6%
b	VII D	ni	ni	237	ni	ni	0	0	0	0	0	0.0%
a	VII E	ni	ni	13	ni	ni	1	1	5	7	13	38.5%
b	VII E	ni	ni	156	ni	ni	0	0	0	0	0	0.0%
b	VII F	ni	ni	2	ni	ni	0	0	0	0	0	0.0%
b	VII G	ni	ni	2	ni	ni	0	0	0	0	0	0.0%
a	VII H	ni	ni	3	ni	ni	1	1	2	3	7	66.7%
a	VIII A	ni	ni	12	ni	ni	0	0	0	0	0	0.0%
b	VIII A	ni	ni	2	ni	ni	0	0	0	0	0	0.0%
a	VIII B	ni	ni	1	ni	ni	0	0	0	0	0	0.0%
a	VIII D	ni	ni	4	ni	ni	0	0	0	0	0	0.0%
a	VII J	ni	ni	78	ni	ni	1	1	4	9	24	5.1%
b	VII J	ni	ni	42	ni	ni	0	0	0	0	0	0.0%

\*Days at sea: only days on which fishery operation took place are presented.



## 3 Results

### 3.1 Haul information and bycatches

In total 411 hauls have been observed during the 12 observer trips. Figure 2 shows the positions of all these hauls.

Of these hauls, 88 were in the period from 1 January to 31 March and in the month December in area VI, VII and VIII (fleet segment A). In the observed hauls there were no bycatches of cetaceans. However in segment A one seal (no species identified) and in segment B three seals in two incidents were bycaught. Unfortunately the seals have not been identified to species level (Table 3 and 4).

Table 3. Cetecean bycatch by species and fleet segment.

Fleet segment	ICES subarea	cetacean species	no. of incidents	no. of specimens	Fish target species
a	-	-	0	0	-
b	-	-	0	0	-

Table 4. Netherlands: bycatch rate of ceteceans, fleet segment And target species

<i>Fleet segment</i>	<i>Cetacean species</i>	<i>By catch rate (specimens/day)</i>	<i>Total bycatch estimate</i>	<i>CV percent</i>
<i>a</i>	-	<i>0</i>	<i>0</i>	<i>6.3%</i>
<i>b</i>	-	<i>0</i>	<i>0</i>	<i>1.9%</i>

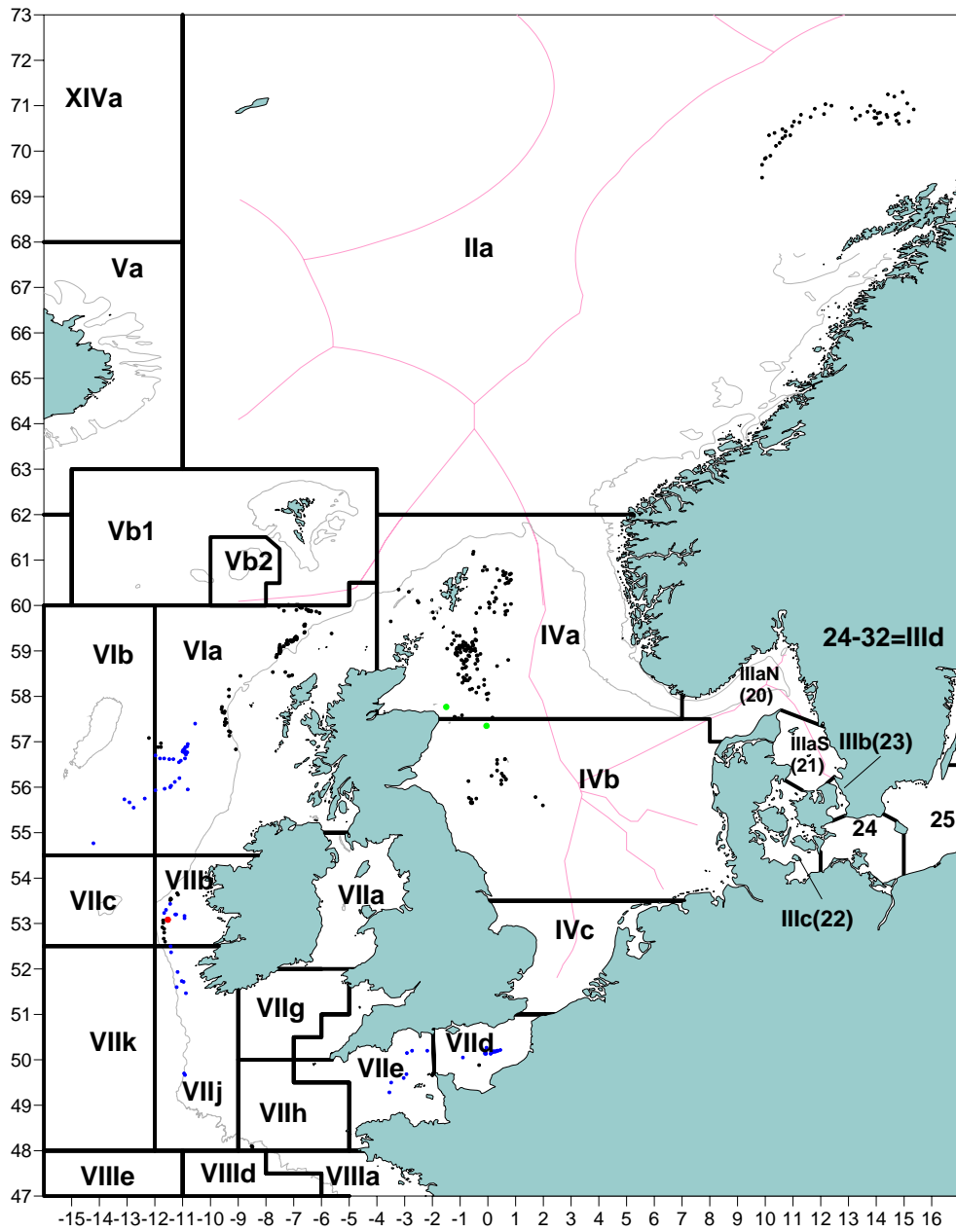


Figure 2. Map with the positions of the observed trawl hauls during the 12 trips dealt with in this report. The blue dots refer to hauls within fleet segment A. The black dots refer to hauls in fleet segment B. The red dot refers to a bycatch incident involving 1 seal within fleet segment A. The two green dots refer to bycatch incidents within fleet segment B in which 3 seals were involved.

## 4 Discussion

With 8.1%, coverage of fleet segment A was less than the 10% required. In contrast the coverage of fleet segment B was more than twice as high as the presumed required coverage of 5%: it is not totally clear from the text of the EU regulation whether the ICES areas VI, VII and VIII outside the period of December – March and the other ICES areas year round should be covered at all or whether they should be covered with 5% observer effort. The observer programme is combined with the collection of discards data which aim at an overall random coverage of 10%. The coverage in fleet segment A may therefore vary from year to year. The advantage of this approach is that incidental bycatches (and discards) can be estimated directly for the whole fleet without having to apply a stratum approach, which would be very complicated, due to the number of different stocks/fisheries and the continuous overlap between these during most of the trips (Couperus et al. 2004). In addition, stratification would require to disregard some fisheries, because the number of fisheries (Couperus et al. 2004) is higher than the number of observed trips required for a 10% coverage and often fishery plans change during the course of a trip. Couperus et al distinguished 12 types of fishery which is equal to the total number of observer trips per year. Some of these fisheries are much larger in terms of effort and landings than others. Hence it is not possible to cover all types of fishery by effort or landings with the current observer effort.

The recorded bycatch is 0.00, which is similar to rates found in 2004/2005 and 2006. In these years only a few specimens have been recorded. See Couperus (2006) for a more extensive evaluation of bycatch rates in the light of developments in the fishery from the nineties till 2005.

Annex 3 shows the bycatch rates from observer trips in fleet segment segment A in the 1990ies and the seasons 2004/2005 - 2006/2007. The catch rate, for example of dolphins per day, is highly variable due to the low number of incidents. From the number of days in the area (i.e. 685 in 2006 and 572 in 2007) one may carefully conclude from these figures that the number of bycaught animals is in the range of tens per year, in the same order of magnitude as in 2005.

In the Dutch fishery, bycatches of dolphins occur mainly in the fishery for horse mackerel and mackerel west of Ireland in February and March (Couperus, 1997). The relatively low bycatch rates in 2005 – 2007 compared to the rates in the nineties are probably related to the increased observer and fishery effort in the blue whiting fishery (Couperus, 2006) and the extension of the observed period with the month December since 2004.

It is not possible to estimate the bycatch rate with any accuracy with the current observer effort, due to the high number of hauls without bycatches. The total mortality caused by Dutch pelagic freezer trawlers in the 2006-2007 season is in the order of magnitude of several tens. However, data from the 1990ies suggest that the bycatch rate may vary, partly induced by changes in the quota's of pelagic target species.

During the observer trips three bycatch incidents with seals occurred. Bycatches of seals are not covered by the EU Council Regulation 812/2004, but we report them here anyway. Bycatches of seals in the Dutch pelagic fishery used to be extremely scarce in the 1990ies (Couperus 1994). However, during the last five years there were some anecdotic reports of bycatch incidents of seals, also from observers. It may be that incidents with seals have occurred during former observer trips, but possibly these were not reported properly, because of unclear instructions of the observers whether or not seals should also be reported in this programme.

## 5 Acknowledgements

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## 7 Annexes

1. Fishing days 2007
2. Trips
3. Bycatch rates compared to previous years

# Annex 1

Fishing days by ICES area in 2007. her=herring; hor=horse mackerel; bw=blue whiting; mac=mackerel; arg=greater argentine; hke=hake. Codes between brackets refer to less important target species. Cells with bold borders indicate the area and period of fleet segment A. Data from the National Logbook Database (VIRIS).

fishing days 2007

ICES area	January	February	March	April	May	June	July	August	September	October	November	December	total
IIA							her ?	her/(bw,mac) 41	her/(bw) 64	her 26	her 15		146
IIB													0
IVA	hor/mac(her) 10				her 37	her 124	her 146	her 25	mac/hor 12	mac/hor 8	mac 21		383
IVB	hor 6				her 4		her 12	her/(hor) 53	her 13		her 1		89
IVC	hor 8	hor/(pil) 18	hor/(her) 19	hor 1		hor/(her) 3	hor 1	hor 4	hor 6	hor/(her) 19	hor/(pil) 25		104
VB				bw 7	bw 4								11
VIA	mac/her/(hor) 59	bw 3	bw 91	bw/arg/(mac) 165	arg/bw/her 28	her/(hor) 30	her/(hor) 12	her 4		hor/(her) 22	hor/her/mac 9		369
VIB		bw 16	bw 13										29
VIIB	hor/mac 46					hor/mac 4	hor 4	hor 12		hor 9	hor/(mac, her) 57	hor 13	145
VIIC	bw/hor/(mac) 38	bw 101	bw 6					hor 1			hor 1		147
VIID	hor/her/(pil) 23	hor/pil/(mac) 21	pil/her/hor 8				hor 1	her/hor/pil 5	hor/(pil,her) 43	hor/her/pil/mac 89	her/hor/(pil) 99	her/hor 29	318
VIII			hor 4				hor/(pil) 24	hor/(pil) 45	hor/(pil) 27	hor/(pil) 24	hor 36	hor 9	169
VIIIF										hor 2			2
VIIIG										her 1	her 1		2
VIIIH	her/hor/(mac,pil) 3												3
VIIIA			mac/hor 12				hor 1				mac 1		14
VIIIB			mac 1										1
VIIID			mac/hor 4										4
VIIJ	mac/hor 38	mac/hor 11	hor/mac/bw 15	hor/(bw) 15		hor/mac 11	hor 1	hor 1		? 1	hor/her 13	hor/(mac) 14	120
VIIK													
total	231	170	173	188	73	172	202	191	165	201	279	65	2110



## Annex 2

Period, target species and ICES areas covered during the trips conducted in this observer programme. \*Number of days of the observed fishing trip; \*\*number of days within segment A, which is the period and area to be covered with 10% effort under EC regulation No 812/2004: 1 December till 31 March, area VI, VII and VIII.

Trip no	period	trip days*	observer days**	target species	bycatch and/or second target	ICES areas
1	3/1 to 27/1/2007	24	22	horse mackerel	herring, mackerel	IVa,VIIb,d,h
2	6/3 to 6/4/2007	31	25	blue whiting		VIa,b
3	16/4 to 8/5/2007	22	0	blue whiting	mackerel	VIa
4	28/4 to 17/5/2007	19	0	blue whiting	greater argentine	VIa
5	11/6 to 30/6/2007	19	0	herring		IVa
6	15/6 to 9/7 2007	24	0	herring		IVa
7	9/8 to 8/9 2007	30	0	herring		IVa,b
8	15/8 to 1/9/2007	17	0	herring		IVa,b
9	21/9 to 10/10/2007	19	0	herring		IIa
10	22/10 to 13/11/2007	22	0	herring		IIa
11	1/12 to 22/12/2007	21	21	horse mackerel	herring	VIIb,d,j
12	4/12 to 17/12/2007	13	13	horse mackerel	herring	VIIId,e

## Annex 3

Bycatch rates by haul and day between 1 January and 31 March in 1993-1996 and between 1 December and 31 March in the seasons 2004/2005 and 2005/2006 in ICES area's VI, VII and VIII. Data from the period 1993-1996 are from 6 observer trips reported in (Couperus, 1994; 1995 and 1997). Dolphin species involved were Atlantic white-sided dolphin (*Lagenorhynchus acutus*; n=7), short beaked common dolphin (*Delphinus delphis*; n=6) and long-finned pilotwhale (*Globicephala melas*; n=1). \*The number of days presented here are the actual number of days at sea (these include real fishing days, but also drifting/processing of the catch and searching), unlike the numbers presented in Table 2 of the main text in which only real fishing days at sea are presented.

	hauls	days*	Incidents	dolphins	inc/ haul	dolphins/ haul	inc/day	dolphins/day
1993	75	25	0	0	0.00	0.00	0.00	0.00
1994	105	48	5	6	0.05	0.06	0.10	0.13
1995	37	13	1	3	0.03	0.08	0.08	0.23
1996	47	26	4	5	0.09	0.11	0.15	0.19
04/05	143	63	2	3	0.01	0.02	0.03	0.05
05/06	135	66	1	1	0.01	0.01	0.02	0.02
06/07	76	43	0	0	0.00	0.00	0.00	0.00