

Agenda Item 5.1: By-catch issues: Implementation of Resolution 3, MOP 3

Letter from the Danish Minister to EU Commissioner Fischler*

* see also the document AC8/Doc. 19(P)

Submitted by: Denmark



ASCOBANS

NOTE:
IN THE INTERESTS OF ECONOMY, DELEGATES ARE KINDLY REMINDED TO BRING THEIR OWN COPIES OF THESE DOCUMENTS TO THE MEETING

Mr Franz Fischler
Member of the European Commission
Rue de la Loi 200
B-1049 Brussels

Copenhagen, 2 March 2001

Dear Mr Fischler,

Thank you for your letter on the impact of fishing on marine ecosystems, in particular dolphins and porpoises.

Denmark has long been concerned about bycatches of porpoises in Danish gillnet fishing, both in the North Sea and in other waters, and about the low number of porpoises in the Baltic.

Porpoise bycatches in Danish fisheries have been monitored using observer programmes since 1992. In 1998 the Danish government adopted an action plan to reduce bycatches of porpoises, and in 2000 a requirement to use acoustic alarms (pingers) in the period August-October in wreck gillnet fishing in the North Sea was introduced, because particularly high levels of bycatches were observed in this type of fishery.

A report on the result of using pingers has recently been completed; it indicates that there were no bycatches in nets with pingers during the period. Data however are insufficient and there is need for more information before more definite conclusions can be drawn. The reduction in gillnet fishing for turbot and cod, *inter alia*, also leads us to expect a certain reduction in porpoise bycatches.

We intend now to evaluate the situation further and to decide what measures will need to be taken in 2001 and the longer term. The Danish fishing industry association is participating in this work and it is a major plus-point that fishermen have made a constructive contribution to finding solutions and guaranteeing the acquisition of pingers.

I enclose the decree on the use of pingers and documents providing more detail about the above. I will also ensure that the Commission is kept constantly informed of evaluation results and new initiatives in Denmark.

Research is extremely important, both with regard to fishing methods and into the size and structure of porpoise stocks. In 2000 a Danish study of reflecting gillnet types was conducted. Denmark has also taken part in the EU-financed project EPIC (Elimination of Porpoise Incidental Catch). A new abundance survey and population structure study will be among our main priorities in the near future.

It is also important to come up with a strategy for porpoises in the Baltic with support from the EU and the region's fishery and environmental organisations.

I am very pleased that the Commission is focussing on the need to establish a targeted strategy for reducing bycatches of dolphins and small cetaceans in EU fisheries. There is a need for a common EU approach and I would ask the Commission to give the matter high priority, both within the common fisheries policy - for instance as part of the sector's environmental strategy - and as part of new research initiatives which the EU and its Member States can conduct jointly.

Regards,

Ritt Bjerregaard

Enc.:

- ◆ Decree on acoustic alarms on net gear in the North Sea
- ◆ Preliminary results from the monitoring of gillnet fishing using acoustic alarms
- ◆ Data on bycatches of marine mammals on board Danish commercial fishing vessels, 1992-2000
- ◆ Trends in Danish gillnet fishing and estimated bycatches of porpoises

Decree on acoustic alarms on net gear in the North Sea¹²

Pursuant to § 32(1), and § 130(2) of the Fisheries Act, cf. Act No. 281 of 12 May 1999, the following is adopted:

§ 1. This Decree shall apply to fishing by registered commercial and part-time fishermen with nets in the North Sea, ICES area IV, (demarcated to the north by latitude 62°00'N, to the west by longitude 4°00'W from latitude 62°00'N to the Scottish coast, to the south by latitude 51°00'N and to the east by a straight line between Hanstholm light and Lindesnes light) and outside the base line.

§ 2. In the period 1 August to 31 October, to avoid bycatches of porpoise, active acoustic alarms shall be fitted to nets which individually or linked in fleets are up to 300 m long. An acoustic alarm is to be fitted to each end of the net or net fleet.

(2). Gear covered by the obligation in the first paragraph shall be provided with a label with the letters AA. The letters must be written legibly on the label along with the fisherman's registration number and the vessel number which, under the rules on the marking of fishing gear, must be affixed 1.2 m above the surface of the water

§ 3. An acoustic alarm must meet one of the following sets of specifications:

- 1)
 - a) Frequency: 8 different signals between 40 and 120 kHz.
 - b) Signal strength: 145 dB (re 1 microPa @ 1 m).
 - c) Signal length: 300 ms.
 - d) Signal interval: random, between 5 and 30 s.
- 2)
 - a) Frequency: 10 kHz broad band.
 - b) Signal strength: 130 dB (re 1 microPa @ 1 m).
 - c) Signal length: 300 ms.
 - d) Signal interval: 4 s

(2). The Fisheries Directorate may approve other acoustic alarms which have an appropriately documented aversive effect on porpoises.

§ 4. Alarms need not be fitted if a net or fleet is within a distance of 200 m of another net or fleet to which acoustic alarms are fitted pursuant to § 3(1) or within 100 m if the alarm meets the requirements of § 3(2).

§ 5. Contravention or attempted contravention of §§ 2 and 3 shall be punishable with a fine.

§ 6. This Decree shall enter into force on 1 August 2000.

Ministry of Food, Agriculture and Fisheries, 9 June 2000

RITT BJERREGAARD

/Lars O. Hansen

¹ Decree notified pursuant to Parliament and Council Directive 98/34/EC (OJ L 204/98, p. 34).

² Decree contains provisions which, with regard to porpoises, implement Article 12(4) of Council Directive 92/43/EEC as published in OJ L 206 of 22.7.1992.

Danish Institute for Fisheries Research, Department of Marine Fisheries

INTERIM REPORT

January 2001

Preliminary results from the monitoring of gillnet fishing using acoustic alarms

Introduction

A study of bycatches of porpoise in Danish North Sea gillnet fishing concluded that the total bycatch was probably of the order of 7 000 animals per year (Vinther, 1999). Denmark has, through its ratification of the ASCOBANS agreement, *inter alia*, undertaken to develop methods to reduce bycatches of small cetaceans in the Baltic and the North Sea.

The Danish Institute for Fisheries Research (DIFRES) demonstrated in a September 1997 trial that acoustic alarms (pingers) can bring about a substantial reduction in bycatches of porpoises, at least in the short term (Larsen, 1997). The Environment and Energy Ministry's "Action plan to reduce incidental bycatches of porpoise" therefore recommends the use of pingers as an important tool in achieving the plan's operational objective of reducing annual bycatches of porpoise to less than 2% of stock size (Environment and Energy Ministry, 1998).

In the North Sea wreck gillnet fishing for cod results in a higher porpoise bycatch rate than other cod gillnet fisheries. To reduce porpoise bycatches in the North Sea a decree was introduced in the period 1 August to 31 October 2000 requiring the use of pingers in all bottom set gillnet fishing in a specified area when net fleets up to 300 m are used. In practice that order will only cover wreck gillnet fishing.

DIFRES was asked to set up a monitoring programme to assess whether the use of pingers had the anticipated effect and would result in a significant reduction in porpoise bycatches.

Observer programme

DIFRES drew up a data collection plan which covered observers on board commercial gillnet vessels fishing on wrecks. Based on previous years' studies, the use of pingers was expected to reduce bycatches by more than 90%. To obtain statistics to demonstrate a 90% reduction in wreck net-fishing information was to be collected from some 200 stations.

Because of delivery problems from the manufacturer the pingers were first used in commercial fisheries at the end of September. Since wreck fishing was relatively limited in

2000 because of stock conditions DIFRES could not implement the planned monitoring programme to the full extent.

Results

In the period 1 September to 31 October 2000 four trips were undertaken with two vessels and data were collected from 99 stations covering 37 600 m of net. Pingers were used at 87 of the stations. On the trips covered by the DIFRES observers there was gillnet fishing without pingers at 12 stations. Figure 1 shows the geographical distribution of all the stations.

At the 87 stations where pingers were used no porpoise bycatches were recorded. At two of the other 12 stations 2 porpoises in all were recorded as bycatches. They were caught on the same trip but two days apart.

In the period 1993-98 420 stations in North Sea wreck fishing were observed in August-October. 16 of those stations had porpoise bycatches, equivalent to a bycatch rate³ of 0.038.

To decide whether the absence of bycatches in nets with pingers could be due to chance a statistical test was carried out comparing the absence of bycatch with the previously observed bycatch rate. The test demonstrated that there would have been a zero bycatch in only 3.4 cases out of 100 if the pingers had had no effect and if the previously observed bycatch rate was determined with no degree of uncertainty.

If, however, we consider the bycatch rate in 1993-98 as an **estimate** of the true rate, there is a 6.5% probability that the bycatch rate in 2000 at stations with pingers due to chance is lower than the rate in 1993-98.

If we choose only to use data collected during the 2000 monitoring and consider the bycatch rate at stations **without** pingers in 2000 as an **estimate** of the true rate, there is a 3.0% probability that the rate at stations **with** pingers due to chance is lower than the rate at stations **without** pingers.

We can therefore conclude that there is only a slight probability that the absence of bycatches in nets with pingers is due to chance. To put it another way: the pingers had the desired effect, there being a significantly lower bycatch rate at stations with pingers than at stations without. How great the reduction in bycatch is with the use of pingers cannot, however, be evaluated on current information.

DIFRES plans, with the approval of the Directorate for Food, Fisheries and AgriBusiness, to supplement the material collected with further observations in 2001 so as to meet the statistical requirement for the quantity of data.

References

Larsen, F. 1997. Effekten af akustiske alarmer på bifangst af marsvin i garn. [*The effect of acoustic alarms on porpoise bycatches in gillnets*]

DFU-rapport nr. 44-97.

Environment and Energy Ministry, 1998. Handlingsplan for reduktion af utilsigtet bifangst af marsvin. [*Action plan for reducing incidental bycatches of porpoises*]

³ Bycatch rate is understood to mean the number of stations with bycatches as a fraction of the total number of stations of the same category.

Environment and Energy Ministry, Forest and Nature Agency, Reserves section (No. SN 1996-402-0035).

Vinther, M. 1999. Bycatches of harbour porpoises (*Phocoena phocoena* L.) in Danish set-net fisheries. *Journal of Cetacean Research and Management* 1(2):123-135.

The report was prepared by:

Senior scientist Finn Larsen, Department of Marine Fisheries, Danish Institute for Fisheries Research,

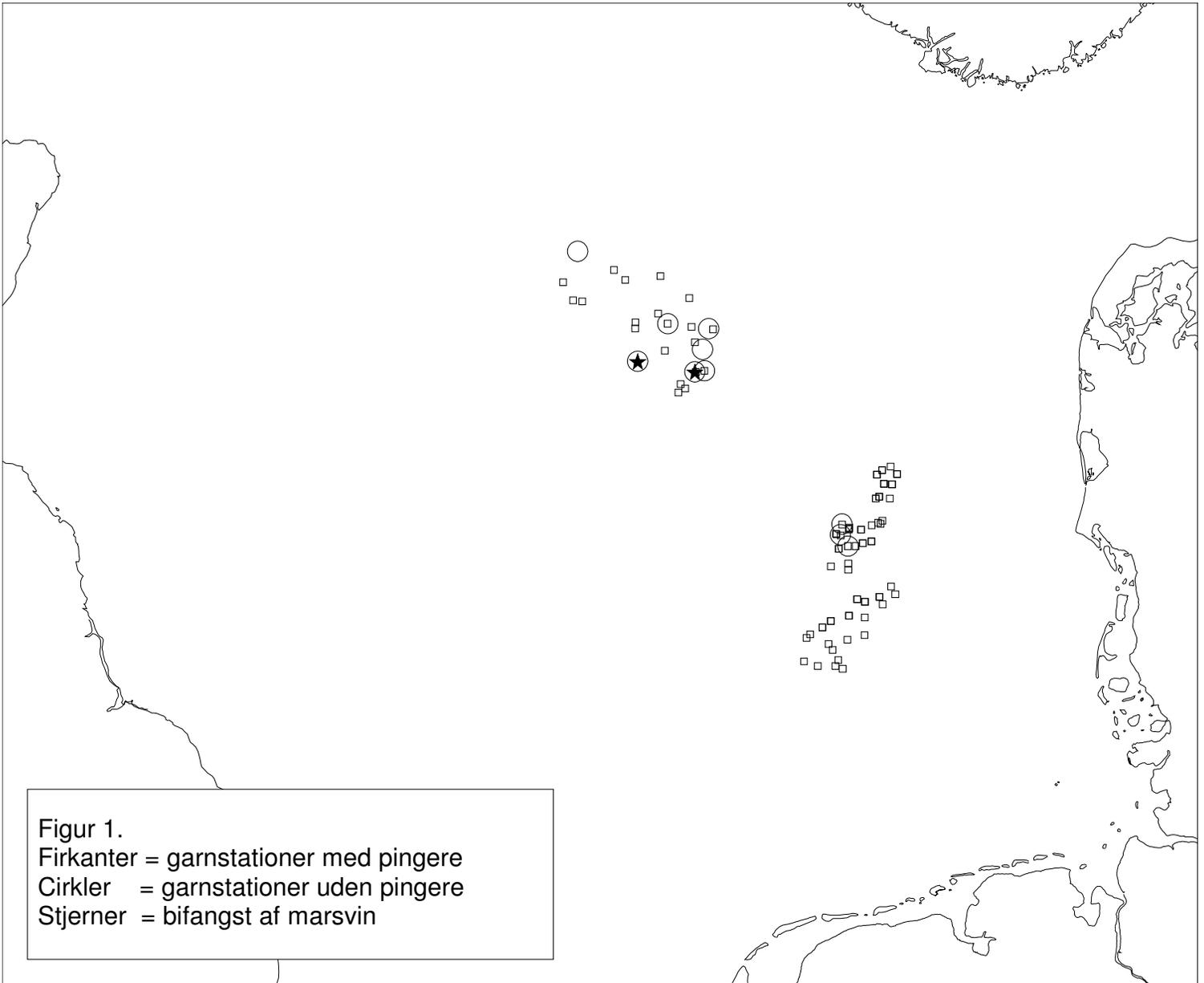
Senior adviser Morten Vinther, Department of Marine Fisheries, Danish Institute for Fisheries Research.

[Key to figure 1 (map.info.map. object):]

Squares/Red flags = net stations with pingers

Circles/Blue flags = net stations without pingers

Stars/Blue circle = bycatch of porpoise



Ministry of Food, Agriculture and Fisheries
Copenhagen
24 February 2001

Collection of data on harbour porpoise bycatches

Data on bycatches of marine mammals on board Danish commercial fishing vessels were collected via a number of observer programmes undertaken by the Danish Institute for Fisheries Research in 1992-2000.

The data show that marine mammal bycatches occur almost exclusively in set-net fisheries and are almost exclusively porpoises. In gillnet fisheries alone, data were collected over the period 1992-2000 from more than 7 000 km of net; this gave us thorough knowledge of the incidence of bycatches in the various net fisheries and the geographical and seasonal distribution of the bycatches. The bycatches mainly occur in nets with large mesh sizes, for example, nets set for cod or turbot. Porpoise bycatches have also been recorded in nets set for lumpfish, plaice and hake. The most recent analyses, including an extrapolation of the data collected to all gillnet fisheries, cover 1992-98 and were published in *Journal of Cetacean Research and Management Vol. 1, Issue 2*.

In 2001 the Institute's observer programmes will cover some 150 days-at-sea in gillnet fishing and some 250 in other fisheries in the North Sea and the Skagerrak. In the Kattegat and the Baltic the programme will cover 100-150 days-at-sea distributed throughout all fisheries.

Memorandum relating to trends in Danish gillnet fishing in the North Sea and estimated porpoise bycatches

In order to describe trends in fishing effort and landings for North Sea gillnet fishing, data were used from the Fisheries Directorate's logbook and sales slips database. There are therefore data on date, gear, days at sea and landings by weight and kroner broken down by species for every fishing trip. Based on that information all fishing trips were categorised in a fishery defined by the landing's species composition. All fishing trips with logbook information and where it is indicated that gillnets were used, were included in the analyses. However, small vessels not covered by the logbook obligation and fishing trips having a species composition which could not be allocated to one fishery were not included. It is estimated that some 95% of all gillnet fishing was included in the report. The Fisheries Directorate has not yet completed recording and quality controlling the data from 2000 so these figures are provisional.

Using somewhat broad categories, gillnet fishing can be divided into five fisheries, in which the main species are cod, plaice, sole, turbot and hake. Table 1 gives a summary of the trend in fishing effort and landings for the different fisheries. In nearly all cases fishing effort increased from 1990 until the mid 1990s, after which it fell again (Table 2).

To calculate the total porpoise bycatch in the period we used the previously published bycatch rates (Vinther, 1999) which were calculated from data collected in the period 1992-98 (Table 3). The rates are estimated as the number of porpoises per quantity of target species landed. To use those rates, it was implicitly assumed that fishing practice and catches per unit of fishing effort remained unchanged throughout the period and that porpoise stocks also remained constant. The rates for cod fishing are given separately for "smoothbottom" and for wreck fishing. The logbooks do not record information on fishing location and it is assumed that landings can be divided equally between the two types of fishery.

The estimated bycatch is shown in Table 4. It follows the general trend in fishing effort with bycatches increasing until the mid 1990s and decreasing substantially thereafter. The rate for 2000, 2 971 porpoises, is the lowest in the period 1990-2000. In the third quarter of 2000 a decree was introduced requiring the use of pingers in cod wreck-fishing in the northern North Sea. The bycatch of 286 porpoises for that period was calculated without taking account of that and the actual bycatch was therefore appreciably lower.

Given the drastic reduction in cod fishing in 2001 the bycatch can be expected to continue to fall in that fishery. However, it is not possible to give an estimate for the entire fishery for 2001, partly because it is unclear where and how cod fishing will occur and partly because the reduction in cod fishing could mean an increase in fishing effort for other gillnet fisheries.

The estimated bycatches should be considered a best guess, given that a large number of assumptions have been made which will certainly not all be fulfilled. For example, in gillnet fishing, falling catch rates can be offset to a degree by using more nets so the reduction in fishing effort and therefore bycatches is less than assumed. However, there is no doubt that the reduction in actual fishing effort over the past five years has been substantial, with the resultant reduction in bycatches of porpoises.

Table 1 Danish North Sea gillnet fishing in the period 1990-2000.

Fishery	Year	No. of trips	Effort (days at sea)	Trip length (days)	Tot. Weight landed (t)	Target species %	CPUE (kg per day)	Target species CPUE (kg per day)
Hake	1990	365	859	2.4	583	56	679	382
	1991	514	1,300	2.5	1,082	54	833	448
	1992	668	1,736	2.6	1,420	65	819	533
	1993	691	2,226	3.2	1,597	57	718	408
	1994	622	1,578	2.5	935	58	593	342
	1995	516	1,225	2.4	872	61	712	432
	1996	274	601	2.2	454	40	757	305
	1997	165	375	2.3	205	43	548	237
	1998	150	452	3.0	313	35	693	240
	1999	214	697	3.3	536	50	770	385
	2000	172	540	3.1	375	50	696	349
Turbot	1990	488	2,423	5.0	1,026	54	424	227
	1991	522	2,390	4.6	1,148	53	481	255
	1992	508	2,033	4.0	947	56	466	260
	1993	319	1,774	5.6	851	63	480	304
	1994	369	1,994	5.4	940	58	472	275
	1995	408	1,865	4.6	842	56	452	255
	1996	360	1,574	4.4	678	55	431	237
	1997	209	1,108	5.3	437	54	395	212
	1998	166	815	4.9	325	47	400	186
	1999	149	580	3.9	199	53	343	181
	2000	237	701	3.0	207	62	296	184
Plaice	1990	594	1,298	2.2	1,091	75	841	634
	1991	2,038	5,075	2.5	4,664	78	919	712
	1992	2,351	5,851	2.5	5,595	78	956	748
	1993	2,040	5,060	2.5	4,817	78	952	741
	1994	4,152	8,126	2.0	6,810	80	838	674
	1995	3,762	6,609	1.8	5,467	79	827	657
	1996	3,220	6,423	2.0	5,717	80	890	708
	1997	1,881	5,078	2.7	5,176	78	1,019	793
	1998	1,218	3,166	2.6	2,841	71	897	636
	1999	1,173	2,598	2.2	2,219	67	854	576
	2000	1,021	2,331	2.3	2,158	72	926	664
Cod	1990	2,878	7,927	2.8	8,528	88	1,076	947
	1991	2,983	8,288	2.8	8,029	82	969	792
	1992	3,506	9,889	2.8	8,797	82	890	729
	1993	3,637	10,875	3.0	9,607	83	883	731
	1994	4,248	11,127	2.6	10,121	86	910	783
	1995	4,190	10,735	2.6	11,399	88	1,062	930
	1996	4,535	10,604	2.3	13,455	88	1,269	1,121
	1997	4,858	11,776	2.4	13,387	89	1,137	1,012
	1998	5,390	13,771	2.6	13,852	88	1,006	885
	1999	4,158	11,121	2.7	9,701	91	872	796
	2000	3,534	8,342	2.4	6,203	88	744	657
Sole	1990	568	1,614	2.8	944	62	585	362
	1991	866	1,950	2.3	906	69	465	320
	1992	1,910	3,052	1.6	947	48	310	148
	1993	2,009	4,376	2.2	1,402	55	320	176
	1994	3,067	6,369	2.1	2,028	65	319	206
	1995	3,289	5,747	1.7	1,820	58	317	183
	1996	1,301	4,722	3.6	1,220	71	258	183
	1997	1,395	4,002	2.9	854	64	214	138
	1998	734	2,707	3.7	815	49	301	146
	1999	1,531	3,178	2.1	888	72	280	202
	2000	1,592	2,910	1.8	1,126	76	387	296

Table 2: Effort, measured as days at sea, in Danish North Sea gillnet fishery in 1990-2000.

Fishery	Year	Days at sea
Hake	1990	859
	1991	1,300
	1992	1,736
	1993	2,226
	1994	1,578
	1995	1,225
	1996	601
	1997	375
	1998	452
	1999	697
2000	540	
Turbot	1990	2,423
	1991	2,390
	1992	2,033
	1993	1,774
	1994	1,994
	1995	1,865
	1996	1,574
	1997	1,108
	1998	815
	1999	580
2000	701	
Plaice	1990	1,298
	1991	5,072
	1992	5,851
	1993	5,057
	1994	8,126
	1995	6,609
	1996	6,423
	1997	5,076
	1998	3,165
	1999	2,596
2000	2,331	
Cod	1990	7,926
	1991	8,288
	1992	9,889
	1993	10,875
	1994	11,124
	1995	10,733
	1996	10,602
	1997	11,776
	1998	13,766
	1999	11,119
2000	8,339	
Sole	1990	1,611
	1991	1,949
	1992	3,049
	1993	4,376
	1994	6,367
	1995	5,745
	1996	4,722
	1997	4,002
	1998	2,707
	1999	3,178
2000	2,910	

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 2,000 4,000 6,000 8,000 10,000 12,000
 Days at sea

Table 3 Bycatch rates used to allocate catches to fisheries.

Fishery	Quarter	Bycatch rate (porpoise/'000 t target species)
Hake	1 - 4	1332
Turbot	1 - 4	5082
Plaice	1 - 4	412
Cod - smooth bottom	1+3	573
	2+4	177
Cod - wreck	1+2+4	34
	3	508
Sole	1 - 4	0

Table 4 Annual porpoise bycatch in Danish North Sea gillnet fisheries.

		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Fishery	Quarter											
Hake	1 - 4	437	775	1233	1211	718	704	244	118	144	357	251
Turbot	1 - 4	2800	3092	2683	2739	2790	2418	1899	1196	771	534	657
Plaice	1 - 4	339	1489	1803	1544	2258	1790	1873	1660	829	616	638
Cod - smooth	1 + 3	1145	1026	1116	1405	1385	1669	1872	1801	1969	1571	839
bottom	2 + 4	311	264	293	269	343	368	474	498	471	298	226
Cod - wreck	1+2+4	119	99	101	99	112	125	157	159	156	121	74
	3	134	187	317	534	532	662	668	658	761	448	286
Sole	1 - 4	0	0	0	0	0	0	0	0	0	0	0
Total	1 - 4	5285	6933	7547	7803	8138	7737	7187	6090	5103	3945	2971