



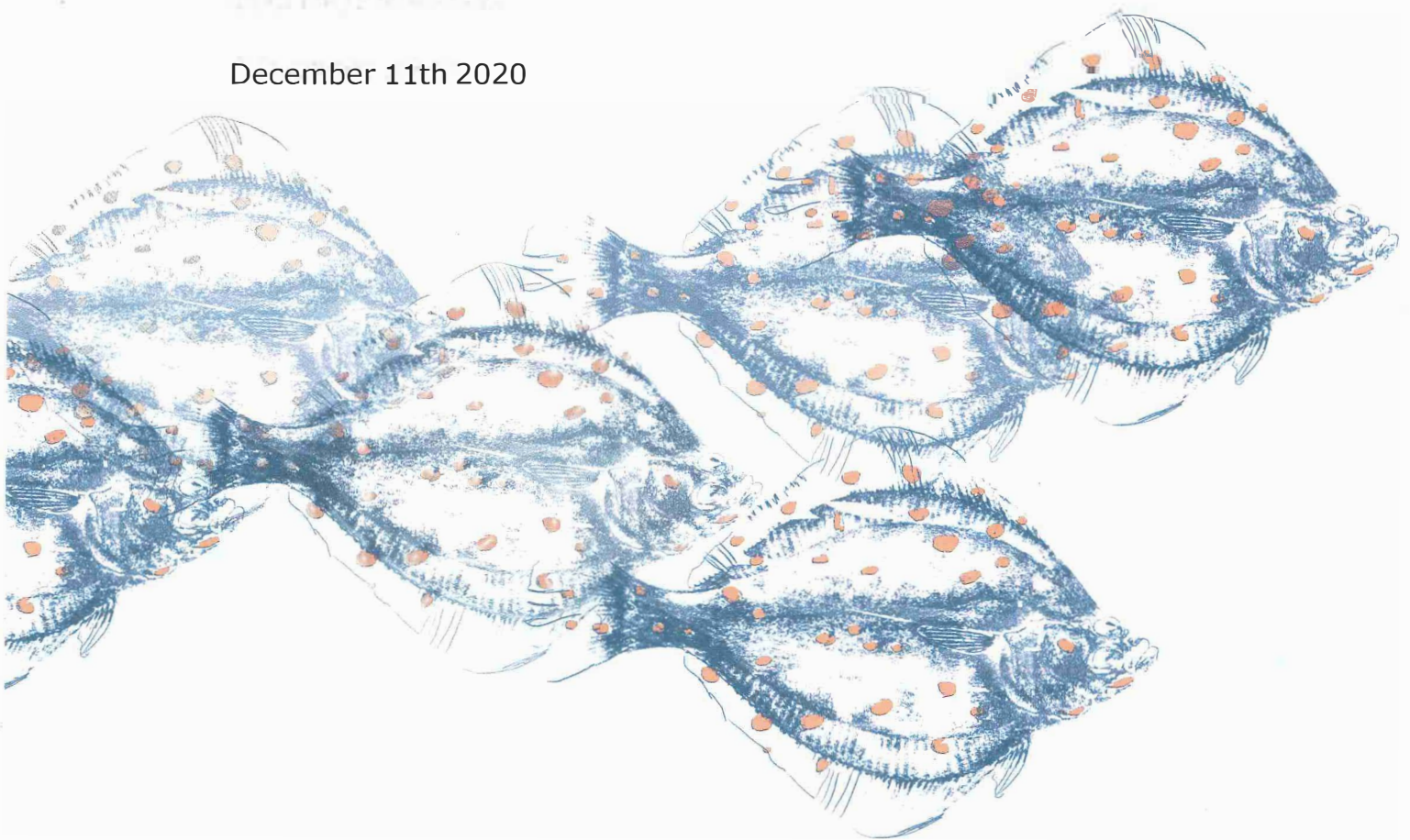
**Stichting Wageningen Research
Centre for Fisheries Research (CVO)**

**Report on incidental bycatches in Dutch
pelagic fishery - 2019**

A.S. Couperus

CVO Report 20.029

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Stichting Wageningen Research Centre for Fisheries Research (CVO)

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A.S. Couperus

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Ministerie van LNV, Directie NVLG
Postbus 20401
2500 EK Den Haag
T.a.v. A.P. Doddema MSc.

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Stichting Wageningen Research
Centre for Fisheries Research (CVO)
P.O. Box 68
1970 AB IJmuiden
Phone. +31 (0)317-487418

Visitor address:
Haringkade 1
1976 CP IJmuiden

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Summary

This report contains the results of the on-going monitoring programme on the incidental bycatch of cetaceans in Dutch pelagic fisheries in 2019. EU Council Regulation 1241/2019 requires observer coverage in ICES areas VI, VII and VIII in the period 1 December – 31 March (fleet segment NLD003) and outside this area in all areas year round (fleet segment NLD004). The same obligations were laid down in EU Regulation 812/2004 which has been repealed. Unlike the 812/2004 Regulation the new Regulation (1241/2019) does not require reporting in a prescribed format. In advance of a future agreed reporting format, which should also involve incidental bycatch recorded in other fisheries sampled under the DCF, the monitoring efforts under Regulation 1241/2019 are reported in the format as prescribed by the former 812/2004 Regulation.

In 2019, during 9 fishing trips, 43 days and 83 hauls were observed in fleet segment NLD003, and 111 days and 273 hauls were observed in fleet segment NLD004. With a total number of fleet days of 390 in fleet segment NLD003 and 694 in fleet segment NLD004, the coverage was 11.0% and 16.0% respectively. Thus the target of the Pilot Monitoring Scheme (PMS) of 10% for NLD003 and 5% for NLD004 has been fulfilled. In addition to these trips, three observer trips were carried out on board of two British flagged trawlers which makes the total number of monitored trips by the Netherlands twelve. The observer effort on board the British flagged trawlers consisted of 52 days (101 hauls), covering 25% of the total Dutch monitoring effort. The data collected during the trips onboard foreign flagged vessels will be made available to the ICES database on incidental bycatch.

The observed bycatch rate of 0.00 dolphins per day in the pelagic fishery in 2019 is in line with the findings in 2006 - 2018 when the observed bycatch rate was 0.00-0.01 dolphins per day.

In addition to cetaceans, this report includes information on incidental bycatches of mega fauna species listed in Table 1D of EU Decision 2016/1251. Seven grey seals (*Halichoerus grypus*) were caught in seven incidents; nine porbeagles (*Lamna nasus*) were caught in eight incidents.

This report also presents the results of 5 monitoring day trips in set gill nets fishery. No incidental bycatch incidents of mega fauna, rare fish or bird were recorded during these trips.

Since January 2017 the monitoring of all protected species is implemented in the new Data Collection Framework (DCF). The national data on bycatch is provided in a yearly data call from ICES WGBYC including data on bycatch of cetaceans presented in this report.

1 General information

Council Regulation No 2019/1241¹ obliges Member States to monitor bycatches of cetaceans in periods and areas in European waters and to report the results of the monitoring to the European Commission. This Council regulation repeals Council Regulation No 812/2004². The content of the new Regulation prescribes the same obligations concerning the use of acoustic mitigation devices and monitoring of cetacean bycatches as in Regulation 812/2004.

Under the regulation the following fleet segments in the Netherlands should be monitored:

- Pelagic fishery in European waters in the period of 1 December till 31 March in ICES areas VI, VII and VIII; in this report referred to as fleet segment NLD003 for single pelagic vessels.
- Pelagic fishery in European waters during the year excluding the fishery in the period 1 December till 31 March in ICES areas VI, VII and VIII; in this report referred to as fleet segment NLD004 for single pelagic vessels.

The 1241/2019 regulation does not require monitoring of fishery with set gill nets in ICES area IVc where (most of) the overall set gill net fishery activity from Dutch ports takes place. However, observer effort in set gill net fishery is reported here, because gill nets are known to be relatively sensitive for incidental bycatch of cetaceans and the regulation encourages the execution of pilot studies in other fleet segments.

Under the regulation, a coverage should be reached leading to a CV of the bycatch estimate of 30% or less. However, in a situation where there are very few bycatch incidents, this CV is not realistic (ICES 2009). Therefore, the target of the current monitoring programme in the Netherlands is to cover the fleet effort according to the Pilot Monitoring Scheme (PMS), in the Regulation originally set for the first two years. The required pilot coverage is 10% (effort fishing days) for the period of 1 December till 31 March in ICES area VI, VII and VIII and 5% in the remainder of the year with exclusion of fleet segment NLD003. For 2019: The Dutch monitoring is integrated with the collection of catch data through scientific observers under the EU Data Collection Framework: CD 2016/1251³ and CR 2017/1004⁴. The project under this regulation aims at an overall coverage of approximately 10% fishing effort (days) in European waters and includes pelagic trawlers under foreign flag, which land the catch in Dutch ports. Data collected under EC. Reg. 812/2004 on board of these vessels are sent to the scientists responsible for the execution of the national monitoring programs in their countries.

¹ Regulation (EU) 2019/1241 of the European Parliament and of the Council of 20 June 2019 on the conservation of fisheries resources and the protection of marine ecosystems through technical measures, amending Council Regulations (EC) No 1967/2006, (EC) No 1224/2009 and Regulations (EU) No 1380/2013, (EU) 2016/1139, (EU) 2018/973, (EU) 2019/472 and (EU) 2019/1022 of the European Parliament and of the Council, and repealing Council Regulations (EC) No 894/97, (EC) No 850/98, (EC) No 2549/2000, (EC) No 254/2002, (EC) No 812/2004 and (EC) No 2187/2005. Official Journal of the European Communities, No. L 198: 105–201. <http://data.europa.eu/eli/reg/2019/1241/oj>.

² 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.

³ COMMISSION IMPLEMENTING DECISION (EU) 2016/1251 of 12 July 2016 adopting a multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors for the period 2017-2019

⁴

REGULATION (EU) 2017/1004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 17 May 2017

on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy and repealing Council Regulation (EC) No 199/2008

Earlier studies on the incidental bycatch of cetaceans have been reported by Couperus (1995) and Couperus (1997a) covering the period 1992 -1996. The period 2004 – 2018 is covered by standard reports on the implementation of EC Regulation 812/2004.

Wageningen Marine Research (WMR) conducts monitoring of bycatch of cetaceans through the statutory tasks programme of the Centre for Fisheries Research (CVO) on behalf of the Ministry of Agriculture, Nature and Food Quality (LNV). The new Regulation does not require any reporting, as was requested in the repealed regulation. CVO and the Ministry of LNV agreed that some sort of reporting of incidental bycatch of protected species would be preferable. The intention of the parties was to meet in spring 2020 to discuss and agree on a new reporting format, which would also include incidental bycatch of other protected species then cetaceans. This meeting never took place due to the Corona pandemic. It was therefore decided to report in the old 812/2004 format, with the addition of other protected species.

Annually, 12 trips are sampled, homogeneously distributed (monthly) over the year. In order to avoid any potential bias in trip selection and to work conform the statistical sound principles as defined in the DCF recast, from 2019 onwards a weighted random selection of the fishery companies is made at the beginning of each monitoring year. Where the weight is determined by the number of vessels each company owns. At the beginning of each month, the randomly selected company is contacted and asked to accommodate an observer trip for the next vessel that is planned to go fishing. The fishing area is not a consideration in the stratification of sampling trips. The choice of fishing area and target species is usually a 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 1241/2019.

The fact that the sampling programme includes the monitoring of vessels that are fishing under foreign flag and land in Dutch ports, adds to the unpredictability of the coverage of the Dutch fleet segments. The Dutch observer effort on board foreign trawlers in 2019 was three trips out of twelve onboard two vessels (33 days covering area 6,7 and 8 in month 1-3 and 12; 19 days outside this period/area).

2 Monitoring

2.1 Description of fishing effort and observer effort in towed gear

In 2019 the pelagic freezer trawler fleet fishing in EU waters consisted of 15 freezertrawlers of which 6 fished under Dutch flag and a set of pair trawlers, fishing under British flag. The remaining 9 fished under German (3 vessels), French (3 vessels), British (3 vessels), and Lituianian (1 vessel) flag. The freezertrawlers fishing from December to March in ICES sub areas VI, VII and VIII are labelled fleet segment NLD003. Fleet segment NLD004 are the same freezertrawlers fishing in area's I-XIV all year round.

In 2019 an observer joined 9 trips fishing under Dutch flag that can be attributed to segments NLD003-NLD004, corresponding with 154 observer days. According to the national logbook database, the number of days fished by the whole pelagic Dutch flagged fleet (NLD003-NLD004) in 2019 was 1084 days. With 154 observer days the overall coverage of the Dutch pelagic fleet was 14.2%. The number of sampled hauls was 356, 83 in NLD003 and 273 in NLD004. The text table provides the effort and coverage by fleet segment:

Fleet segment	Fleet days	Observer days	Coverage required according to PMS	Coverage achieved
Pelagic trawl (NLD003)	390	43	10%	11.0%
Pelagic trawl (NLD004)	694	111	5%	16.0%
Trammel nets	No data	(2)*	0%	No data
Gill nets	No data	5	0%	No data
Set Nets (unspecified)	No data	0

*In total 5 day trips have been carried out on board gill nets vessels (see next row), on two of the trips part of the nets were trammel nets.

Table 2 provides fleet effort and observer coverage by ICES subarea.

The fleet effort data were extracted from the WMR VISSTAT database. This database is meant to provide fleet effort data for fisheries research. It contains an extraction of governmental data that were originally collected for fishing control (logbook data). Therefore the data have some limitations. For example, a vessel may have visited several areas on one day which means that a day on which a vessel fished in two areas is counted as two days. Thus the sum of all days at sea is not necessarily the same as the total fishing days at sea. Observer days and fleet days during which no fishing took place are not counted as effort days. The data collected during these trips are made available to the ICES database on incidental bycatch (WGBYC Database).

In addition to the 9 trips on board Dutch flagged freezertrawlers, 3 observer trips took place on board two British flagged freezertrawler (52 days, 101 hauls), consisting of 25% of the total Dutch observer effort in the pelagic freezertrawler fishery. The data collected during the trips onboard foreign vessels are also made available to the ICES database on incidental bycatch (WGBYC Database).

2.2 Description of fishing effort and observer effort in static gear

In 2019 the set gill net fishery was monitored under the DCF (see footnotes paragraph 4). The Dutch set gill net fleet consists of 70-100 vessels. Most of them are operated by part time fishermen. Therefore, many vessels do not fish for extended periods during the year. Some did not fish at all. Most of the vessels fish with tangle nets for sole. Part of the fleet (5-10 vessels, depending on the catches and the market) switches in winter to trammel nets, targeting cod, turbot and mixed flatfish (brill, plaice, dab, flounder). A few vessels (the exact number is unknown) may fish at wrecks with gill nets for cod or near dams for bass. A few "vessels" (the exact number is unknown) operate from the beach. Since most vessels are very small, trip duration is normally one day. Approximately five vessels are larger than 12m and may stay at sea overnight.

Since 2017 the Dutch government aims to sample 10 trips of vessels that operate with passive gear per year without pre-stratification to net type. Sampled fleets include vessels that fish with nets, fykes, lines and traps. In 2019 set nets were used in five of the 10 sampled trips.

Unfortunately in 2019 (like in 2018) fishing effort data by day were not available for set nets in the VISTAT database. This is caused by a new regulation of the Dutch government that set net fishers do not have to report on daily basis.

3 Estimation of incidental catches

3.1 Incidental catch rates by fleet segment and target species

In the Dutch pelagic fishery monitoring programme (fleet segment NLD003 and NLD004) and in the gill net fishery, no incidental bycatch incidents of cetaceans were reported. Incidental bycatch of non-cetacean species, including birds, mammals and reptiles and fish (of fish only "megafauna" is reported

here) protected under Union legislation and international agreements, consisted of 7 incidents in which 7 grey seals (*Halichoerus grypus*) were caught in January/begin February, in ICES sub divisions 6a and 7b in the fishery for horse mackerel; 8 incidents with 9 individuals of porbeagle (*Lamna nasus*) in 4a of which five incidents were recorded in late April/May in the blue whiting fishery and three incidents in September/October in the fishery for herring.

The area and periods in which last year (2018) high bycatch rates were found for grey seal (4b, September) and porbeagle (7h, February) were not monitored in 2019. See the text table below.

Year	ICES subdivision 4b			Subdiv 7h – month 1,2,3&12	
	Fleet days	Days obs	Days obs in september	Fleet days	Observed days
2013	26	0	0	28	3
2014	103	0	0	13	6
2015	65	10	0	3	2
2016	81	12	4	1	0
2017	84	14	3	1	0
2018	139	7	7	65	11
2019	77	3	0	5	0

4 Recording of incidental catches

On board the pelagic freezertrawlers, the observer was present on the bridge during shooting and hauling of each tow. Position and time were recorded at the beginning ending of each haul. The rear window of the bridge gives a good view on the rear deck, so that most bycatches of cetaceans can be recorded from there. Any incidental bycatch, species and number of specimens must be recorded and if possible length and sex of each specimen. In some fisheries – where bycatch of megafauna is expected – netting with large meshes is used to prevent large catch items end up in the codend obstructing the entrance of the fish pump. In these cases the crew may get rid of bycaught megafauna during hauling by zipping the part of the net open that is not yet on deck: large items which got stuck in the netting fall into the water without being recorded by the observer. The observer is instructed to check and ask for the use of this netting.

On board gill net vessels, the hauling continues over extended periods of time. Observers take length frequency samples of the fish caught during hauling. Therefore they may miss the bycaught specimens of cetaceans that drop out of the net before the net during the process of hauling. For this reason numbers presented in this report are considered to be minimum numbers. However, given the closeness of the observer to the actual hauling process on board these very small vessels, it is believed that the observed numbers are unlikely to differ from the actual numbers.

5 Discussion

With 11% coverage of fleet segment NLD003 the PMS target of 10% has been fulfilled. Also the target of 5% for the fleet segment NLD004 has been fulfilled (16% coverage). As explained above, the observer effort is combined with the DCF sampling following a random scheme. The observer programme is combined with the collection of catch data which aims at an overall random coverage of 10%. Therefore, the coverage in the fleet segments varies from year to year.

The fishing area of a freezertrawler trip is often not known until it leaves port and may change during the trip itself. In addition, the actual observer effort during transport towards -, from - and between fishing areas is not taken into account in this report for practical reasons. For example the assignment to metiers of sail- and search time is complicating – whereas an observer has to stay on board the whole trip. This year's coverage meets the PMS target while three out of twelve trips were carried out on board British flagged trawlers which do not add to the Dutch observer effort. The observer coverage would have been much higher, if only Dutch trawlers would have been observed.

The recorded bycatch rate of cetaceans in the Dutch pelagic fishery is 0.00 (no cetaceans in 185 observed days), which is similar to rates found in 2005 - 2018. In the Dutch fishery, bycatches of dolphins occurred in the past mainly in the fishery for horse mackerel and mackerel west of Ireland in February and March (Couperus 1997b). The relatively low bycatch rates in 2005 – 2019 compared to the rates in the nineties are probably related to a shift in effort from the horse mackerel towards the blue whiting fishery during these two months (Couperus 2006): the fishery of blue whiting takes place in a different area (off shelf, deeper), probably resulting in less overlap with small cetaceans.

Due to the high number of hauls without bycatches it is not possible to estimate the bycatch rates of cetaceans with a CV lower than 0.30 as required in the EU Regulation. The same is the case for incidental bycatch of the other megafauna reported here. If extrapolated to the fleet the total bycatch mortality of cetaceans caused by Dutch pelagic freezertrawlers in the 2005-2018 seasons is in the order of magnitude of zero to several tens. However, data from the nineties suggest that the bycatch rate may vary, partly induced by changes in the quotas of pelagic target species (Couperus, 1997b).

In last year's report (Couperus, 2019) high bycatch rates of porbeagle in ICES subdivision 7h and grey seal in subdivision 4b (September, herring) may be reason for concern. No observer days were carried out in both fisheries in 2019 which is a result of the random set up of the program and the fact that the fleet effort (expressed in fleet days) in 4b in 2019 was lower than in 2018 (see text table in paragraph 3.1).

Unfortunately the fleet effort by month is not readily available for this report. For future reporting is recommend to present the fleet-, observer effort and bycatches by month. The current reporting format with fleet segments for ICES subdivisions 6 - 8 in month 1 -3 and 12 (NL003) and the remaining area-periods (NL004) is not suitable for the addressing incidental bycatch of protected species.

In the set net monitoring programme no bycatch incidents of cetaceans were observed in 5 day trips. Earlier monitoring pilot studies resulted in zero bycatches in 34 day trips with gill nets for mullet and bass (Klinge 2008); 1 harbour porpoise during 48 day trips with trammel- and gill nets (Couperus *et al.* 2009); 6 harbour porpoises in 24 REM-monitoring days and zero porpoises in 6 days of Remote Electronic Monitoring (REM) for sole and 4 for bass (Helmond en Couperus 2011). In a REM study (Scheidat *et al.* 2018), investigating the Dutch set gillnet fleet, the estimated bycatch rates for set nets (gsingle wall gill net and trammel nets) were 0.0087/fishing day, 0.1011/ton landed and 0.1145/km daily net length. The most accurate bycatch rate was by daily net length, resulting in an estimated yearly mortality of 23 (95% C.I. 2-44) or 0.06% of the total population (41299, 95% C.I. 21194 – 79256) on the Dutch continental shelf in summer 2015 (Geelhoed, 2013, 2014 and 2015).

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TABLES

Table 1. Pingers used in fleet segment set gill nets.

Metier	Fishing area	Pinger characteristics	Other mitigation measures
-	-	-	-

Table 2. Fleet effort and observer effort in towed gear

*PMS = Pilot Monitoring Scheme

Fishery segment (ref in this report)	Metier	Fishing area	Total fishing effort						Total observer effort achieved						Type of monitoring*	Coverage
			No. of vessels	No. of trips	Days at sea	Months of operation	No. of hauls	Total towing time	No. of vessels	No. of trips	Days at sea	Months of operation	No. of hauls	Total towing time (min)		
NLD003	OTM small pelagic fish	27.6.a	6	17	179	1,2,3 & 12	unk	unk	2	2	31	1,2,3 & 12	59	19790	PMS	17.3%
NLD003	OTM small pelagic fish	27.6.b	1	1	3	1,2,3 & 12	unk	unk	0	0	0	1,2,3 & 12	0	0	PMS	0.0%
NLD003	OTM small pelagic fish	27.7.b	6	12	55	1,2,3 & 12	unk	unk	1	1	10	1,2,3 & 12	20	5350	PMS	18.2%
NLD003	OTM small pelagic fish	27.7.c	6	11	61	1,2,3 & 12	unk	unk	0	0	0	1,2,3 & 12	0	0	PMS	0.0%
NLD003	OTM small pelagic fish	27.7.d	6	8	61	1,2,3 & 12	unk	unk	1	1	1	1,2,3 & 12	3	240	PMS	1.6%
NLD003	OTM small pelagic fish	27.7.e	3	3	8	1,2,3 & 12	unk	unk	1	1	1	1,2,3 & 12	1	320	PMS	12.5%
NLD003	OTM small pelagic fish	27.7.h	2	2	5	1,2,3 & 12	unk	unk	0	0	0	1,2,3 & 12	0	0	PMS	0.0%
NLD003	OTM small pelagic fish	27.7.j	3	4	7	1,2,3 & 12	unk	unk	0	0	0	1,2,3 & 12	0	0	PMS	0.0%
NLD003	OTM small pelagic fish	27.7.k	4	4	9	1,2,3 & 12	unk	unk	0	0	0	1,2,3 & 12	0	0	PMS	0.0%
NLD003	OTM small pelagic fish	27.8.b	1	1	2	1,2,3 & 12	unk	unk	0	0	0	1,2,3 & 12	0	0	PMS	0.0%
NLD004	OTM small pelagic fish	27.2.a	3	4	61	1-12	unk	unk	0	0	0	1-12	0	0	PMS	0.0%
NLD004	OTM small pelagic fish	27.2.b	0	0	0	1-12	unk	unk	0	0	0	1-12	0	0	PMS	
NLD004	OTM small pelagic fish	27.4.a	6	24	209	1-12	unk	unk	4	6	57	1-12	158	17550	PMS	27.3%
NLD004	OTM small pelagic fish	27.4.b	5	11	77	1-12	unk	unk	2	2	3	1-12	7	625	PMS	3.9%
NLD004	OTM small pelagic fish	27.4.c	0	0	0	1-12	unk	unk	0	0	0	1-12	0	0	PMS	
NLD004	OTM small pelagic fish	27.5.b	0	0	0	4-11	unk	unk	0	0	0	1-12	0	0	PMS	
NLD004	OTM small pelagic fish	27.6.a	7	23	222	4-11	unk	unk	2	2	25	4-11	56	18676	PMS	11.3%
NLD004	OTM small pelagic fish	27.7.b	5	6	11	4-11	unk	unk	2	2	3	4-11	4	970	PMS	27.3%
NLD004	OTM small pelagic fish	27.7.d	3	4	18	4-11	unk	unk	0	0	0	4-11	0	0	PMS	0.0%
NLD004	OTM small pelagic fish	27.7.e	1	1	2	4-11	unk	unk	0	0	0	4-11	0	0	PMS	0.0%
NLD004	OTM small pelagic fish	27.7.f	2	3	13	4-11	unk	unk	1	1	1	4-11	1	120	PMS	7.7%
NLD004	OTM small pelagic fish	27.7.g	3	3	15	4-11	unk	unk	0	0	0	4-11	0	0	PMS	0.0%
NLD004	OTM small pelagic fish	27.7.h	1	1	1	4-11	unk	unk	0	0	0	4-11	0	0	PMS	0.0%
NLD004	OTM small pelagic fish	27.7.j	4	7	58	4-11	unk	unk	2	2	22	4-11	47	17130	PMS	37.9%
NLD004	OTM small pelagic fish	27.8.b	1	1	7	4-11	unk	unk	0	0	0	4-11	0	0	PMS	0.0%
NLD004	OTM small pelagic fish	27.8.d	0	0	0	4-11	unk	unk	0	0	0	4-11	0	0	PMS	

Table 3. Fleet effort and observer effort in static gear (Nets=unspecified; GNS=Set Gill Nets; GTR; Trammel Nets)

Metier	Fishing area	Total fishing effort						Total observer effort achieved						Type of monitoring*	Coverage
		No. of vessels	No. of trips	Days at sea	Months of operation	Total length of nets	Total soak time	No. of vessels	No. of trips	Days at sea	Months of operation	Total length of nets	Total soak time		
GNS	27.4.b					unk	unk	0	0	0	1-12	0	0	PMS	
GNS	27.4.c					unk	unk	5	5	5	1-12	22850	94	PMS	
GTR	27.4.c					unk	unk	2	2	2	1-12	250	56	PMS	

* PMS = Pilot Monitoring Scheme

Table 4. Bycatch rates. Incidental catch rates are expressed as in specimens/days. No incidental catch estimate is provided for GNS, because the sampled trip was not representative for Dutch set gill net effort (see main text). * The incidental catch estimate provided is calculated by multiplying the incidental catch rate with the effort (day at sea) in table 2.

Fishery segment (ref in this report)	Metier	Fishing area	Main target species	Incidental caught species	Number of incidents	Number of specimens incidentally caught by species		Incidental catch rates		Total incidental catch estimate	CV
						With pingers	Without pingers	With pingers	Without pingers		
NLD003	OTM small pelagic fish	27.6.a	Horse mackerel	Halichoerus grypus	3	0	3	0	0.10	17.32	
NLD003	OTM small pelagic fish	27.6.a	Blue whiting	Somniosus microcephalus	2	0	2	0	0.06	11.55	
NLD003	OTM small pelagic fish	27.6.a	Blue whiting	Hexanchus griseus	1	0	1	0	0.03	5.77	
NLD003	OTM small pelagic fish	27.7.b	Horse mackerel	Halichoerus grypus	4	0	4	0	0.40	22.00	
NLD004	OTM small pelagic fish	27.4.a	Herring	Lamna nasus	3	0	3	0	0.05	11.00	
NLD004	OTM small pelagic fish	27.4.a	Blue whiting	Lamna nasus	3	0	4	0	0.07	14.67	
NLD004	OTM small pelagic fish	27.4.a	Herring	Squalus acanthias	9	0	78	0	1.37	286.00	
NLD004	OTM small pelagic fish	27.6.a	Blue whiting	Etmopterus spinax	2	0	2	0	0.08	17.76	
NLD004	OTM small pelagic fish	27.6.a	Blue whiting	Lamna nasus	2	0	2	0	0.08	17.76	

Justification

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The quality of this report has been peer reviewed by a colleague scientist and the head of CVO.

Approved by: H.M.J. van Overzee
Researcher

Signature:



Date: December 11th 2020

Approved by: Ing. S.W. Verver
Head Centre for Fisheries Research

Signature:



Date: December 11th 2020