24 May 2017

Report to the European Commission under Article 22 of Regulation (EU) No 1380/2013 on the balance between fishing capacity and fishing opportunities in the German fishing fleet in 2016

1.A: Fleet description and development

i. Fleet description

As at 31 December 2016 the German fishing fleet comprises 1 413 fishing vessels, which is 27 vessels fewer than in the previous year. Furthermore, fishing capacity fell by 274 GT and 1 274 kW. In the description below the vessels have been broken down into seven groups.

Static net vessels < 12 m (PG VL0010, PG VL1012)
The largest segment of the German fishing fleet is made up of 1 099 small-scale coastal fishing vessels with a total length overall of less than 12 metres. These vessels mainly operate with static nets in the Baltic Sea. Around 40 % of the vessels in this segment are used in the context of a side business, which is reflected in a very low number of sea days. The species fished are primarily herring and cod, but also include flounder.

Compared with the previous year there were 23 fewer vessels in this segment. Moreover, engine power decreased by 39 kW and tonnage by 28 GT.

Fishing vessels using passive gear ≥ 12 m (DFN VL1218, DFN VL1824, DFN VL2440, FPO VL1218, FPO VL2440)
A further segment of the fleet is made up of fishing vessels with a length overall of 12 metres or more operating with passive fishing gear. During the reporting period, 14 fishing vessels fell into this category. Some of these vessels operate only in western waters, where they mainly fish Atlantic deep-sea red crab (*Chaceon affinis*) and anglerfish. Vessels in this segment also fish in the western Baltic Sea (for herring and cod) and in the North Sea (for cod, plaice and sole).

This segment increased by one vessel compared to 2015, adding 30 GT and 124 kW in capacity.

Trawlers < 40 m (DTS VL0010, DTS VL1012, DTS VL1218, DTS VL1824, DTS VL2440, TM VL1218, TM VL1824, TM VL2440)

As at 31 December 2016 this trawler segment included a total of 67 vessels. In the North Sea they mainly fished saithe, sandeel, herring and cod, but also relatively large quantities of haddock, sprat, hake and plaice. In the Baltic Sea they targeted herring, cod and sprat.

In this segment Germany recorded a reduction of six vessels compared with 2015, which reduced tonnage by 428 GT and engine power by 1 027 kW.

Beam trawlers (TBB VL0010, TBB VL1218, TBB VL1824, TBB VL2440, TBB VL40XX)

The beam trawlers on lists 1 and 2 and the larger beam trawlers are an important part of the German fishing industry. The listed vessels, whose engine power may not exceed 221 kW, mainly operate in the flatfish protection zone (target species: common shrimp, plaice and sole). The larger vessels operate throughout the North Sea.

Ten vessels within this segment are equipped with electric pulse beam trawls. Germany therefore complies with Article 31a of Regulation (EC) No 850/1998, according to which a maximum of 5% of vessels in this segment may be equipped with a pulse trawl.

As at 31 December 2016 the German fishing fleet comprised 213 beam trawlers with a total capacity of 10 708 GT and 46 261 kW. This is a reduction of 41 GT and 892 kW compared to the previous year.

Pelagic trawlers (TM VL40XX)

Germany counted a total of five vessels in the pelagic fishing segment (total length of 40 metres or more) in 2016. These mainly operated in the North Sea and in western British waters (ICES IVa, VIa and VII). The target species were mainly herring, blue whiting and mackerel. One vessel in this segment operated in Moroccan and Mauritanian waters (FAO areas 34-131 and 34-132), where it made good catches of pilchard sardine (PIL) and Spanish mackerel (MAS). Moreover, one vessel fished in area 87 (Pacific Ocean), where, *inter alia*, it caught 9 100 tonnes of Chilean jack mackerel.

There were no changes in capacity compared to the previous year.

Deep-sea demersal fishing vessels (DTS VL40XX)

The seven vessels registered in the deep-sea demersal fishing segment operated in the entire North Atlantic (including Svalbard, the Barents Sea, Greenland; ICES I, II and XIV and NAFO 1). Catches in the northern North Sea, Norwegian waters and off Svalbard were mainly cod. Good catches of halibut and redfish were made in Greenland waters, NAFO and to some extent also in NEAFC areas.

There were no changes in this segment compared to 2015.

Mussel dredgers (DRB VL1218, DRB VL1824, DRB VL40XX)
This segment of the fleet counts eight vessels engaged in mussel dredging not belonging to segment AQU.

With one additional vessel, fishing capacity in this segment increased by 193 GT and 560 kW, respectively.

ii. Fisheries by fleet segment

The information presented below is broken down by DCF segment (Appendix III to Commission Decision 2010/93/EU). **Annex 1** sets out the fish stocks and invertebrate stocks fished by each segment in 2016. The listed stocks are the ones of greatest importance to the segment concerned. In general, stocks have been taken into account provided that at least 100 tonnes were landed by vessels in the segment concerned in 2016, or at least 500 tonnes in the case of pelagic trawlers measuring more than 40 m (TM VL40XX).

The stock assessments (**Annex 2**) relate to 2015 as regards fishing mortality (F) and to the beginning of 2016 with regard to estimated reproductive capacity. It should be noted that in most cases, fishing mortality for a given stock is the result of the fishing activities of several fleets from all the countries involved, and is therefore not attributable to fishing by German vessels alone. Complete data for 2016 will only become available in the course of 2017 after the deadline for submitting this fleet report. More recent data (collected in 2016) may result in significantly different assessments for certain stocks, which will have to be taken into account in the next annual report.

Last year's annual report was revised in October 2016 as the state of the western Baltic cod stock (*Gadus morhua*) was found to have deteriorated significantly. The ICES Advice of June 2016 recommended that catches of western Baltic cod should be reduced by 87.5 % and fishing mortality brought down to 0.15 under the MSY approach. Fishing mortality in 2015 was 0.58, well above F_{MSY}. 2015 was the weakest year in the (short) time series. Due to very high fishing pressure over the last few years, only a few year classes are fished (>80 % of catches are made up of two and three-year old fish). This shows a direct link between weak offspring production and poor fishing opportunities the following year, which is likely to have a significant adverse impact on fisheries not only in 2017, but also in 2018. Although updated indicator values are not yet available, it is clear that this stock is in a very serious condition.

Western Baltic cod is a major source of income for various fleet segments (in particular PG0010, PG1012, DTS1012 and DTS1218). The vessels concerned are only partly able to make up for the expected income loss by targeting other species (e.g. flatfish and fresh water species), and transferring activities to other areas is mostly not an option. The affected vessels are therefore confronted with an economic crisis threatening their survival. The current dramatic trend as regards the cod stock further aggravates existing overcapacity in the fleet segments concerned.

Vessels using passive fishing gear < 10 m (PG VL0010)

In 2016 the vessels in this segment mainly fished four marine stocks of three different species (cod, herring and flounder). The spawning stock biomass (SSB) of the western Baltic cod was below B_{lim} (reduced reproductive capacity), whereas fishing mortality F_C remains above F_{MSY}. Catches in this segment totalled 629 tonnes. According to the latest ICES Advice (October 2016), the state of the western Baltic cod stock remains poor and the fishing opportunities in this segment both in 2017 and the following years will be considerably lower than in previous years. Western Baltic herring had full reproductive capacity and fishing mortality F was below F_{MSY}. Catches in this segment totalled 2 163 tonnes. This segment also recorded important catches from two flounder stocks in the southern and western Baltic Sea (southern Baltic flounder: 147 tonnes; Belt Sea and Øresund flounder: 142 tonnes). Given that there is no ICES-approved assessment for these stocks, their status cannot be given in relation to reference points. However, both stocks appear to be developing well. Apart from the main marine species, this segment also caught larger quantities of European perch (248 tonnes), roach (534 tonnes), bream (338 tonnes) and zander (220 tonnes) in the Baltic Sea.

Vessels using passive fishing gear 10-12 m (PG VL1012)

Vessels in this segment mainly fished three stocks in the Baltic Sea in 2016. The spawning stock biomass (SSB) of the western Baltic cod (494 tonnes) was below B_{lim} (reduced reproductive capacity), whereas fishing mortality remains above F_{MSY}. According to the latest ICES Advice (October 2016), the state of the western Baltic cod stock remains poor and the fishing opportunities in this segment both in 2017 and the following years will be considerably lower than in previous years. Western Baltic herring (2 083 tonnes) has full reproductive capacity and F was below F_{MSY}. In addition, 118 tonnes of flounder were caught in the southern Baltic Sea. Given that there is no ICES-approved assessment for this stock, its status cannot be given in relation to reference points.

Drift or fixed netters 12-18 m (DFN VL1218)

Vessels in this segment mainly fished herring in the western Baltic Sea (552 tonnes) in 2016. Western Baltic herring has full reproductive capacity and fishing mortality F was below F_{MSY}.

Drift or fixed netters 24-40 m (DFN VL2440)

This segment mainly fished anglerfish in the northeast Atlantic (679 tonnes) in 2016. There are no reference points or targets for anglerfish; however, qualitative data from ICES revealed a stable to growing trend. Lastly, 123 tonnes of North Sea cod were caught by vessels in this segment. The state of the North Sea cod stock has improved and the stock now has full reproductive capacity. However, fishing mortality F_{curr} is still above F_{MSY}.

Mussel dredgers (DRB)

Vessels in this segment mainly fished mussels in the western Baltic Sea (ICES SD 22) and the North Sea. No stock assessment is available for mussels.

Beam trawlers 0-10 m (TBB VL0010)

Beam trawlers in this segment caught almost exclusively common shrimp (*Crangon crangon*, 30 tonnes). There is no quota for this target species and no analytical stock calculation is made. Due to low catches (< 100 tonnes), this segment will not be further taken into account.

Beam trawlers 10-12 m (TBB VL1012)

Beam trawlers in this segment caught almost exclusively common shrimp (*Crangon crangon*, 32 tonnes). There is no quota for this target species and no analytical stock calculation is made. Due to low catches (< 100 tonnes), this segment will not be further taken into account.

Beam trawlers 12–18 m (TBB VL1218)

Beam trawlers in this segment caught almost exclusively common shrimp (3 848 tonnes). There is no quota for this target species and no analytical stock calculation is made.

Beam trawlers 18–24 m (TBB VL1824)

Beam trawlers in this segment caught almost exclusively common shrimp (3 560 tonnes). There is no quota for this target species and no analytical stock calculation is made. In addition, 250 tonnes of plaice and 123 tonnes of Norway lobster were caught in the North Sea. Plaice has full reproductive capacity and fishing mortality remains below F_{MSY}. For Norway lobster there are many subpopulations whose stock status varies.

Beam trawlers 24-40 m (TBB VL2440)

In the North Sea, beam trawlers in this segment mainly fished plaice (1 577 tonnes), sole (587 tonnes), mussels (323 tonnes), turbot (124 tonnes), dab (123 tonnes), grey and red gurnard (116 tonnes) and common shrimp (104 tonnes). Both plaice and sole have full reproductive capacity. For plaice, fishing mortality was below F_{MSY} while for sole it was exactly at F_{MSY} level. For North Sea dab, turbot and grey and red gurnard no classification is possible, and for mussels and common shrimp there was no stock assessment available.

Beam trawlers > 40 m (TBB VL40XX)

In the North Sea, beam trawlers in this segment mainly caught mussels (1 037 tonnes) and plaice (364 tonnes). Plaice has full reproductive capacity and fishing mortality is below F_{MSY}, whereas for North Sea mussels no stock assessment is available. In addition, 88 tonnes of sole were also caught in this segment. This species has full reproductive capacity and fishing mortality equals F_{MSY}.

Demersal trawlers 10-12 m (DTS VL1012)

Vessels in this segment mainly fished herring (442 tonnes) and dab (129 tonnes) in the western Baltic Sea. Western Baltic herring has full reproductive capacity and fishing mortality F was below F_{MSY}. No stock calculation can currently be made for Baltic dab.

Demersal trawlers 12–18 m (DTS VL1218)

Vessels in this segment mainly fished herring (1 031 tonnes) and cod (509 tonnes) in the western Baltic Sea, plaice (311 tonnes, Kattegat and Belt Sea) and whiting (130 tonnes, Belt Sea and SD 24). They also caught dab (490 tonnes) and sprat (241 tonnes) across the Baltic Sea and flounder (185 tonnes) in the Belt Sea. The spawning stock biomass (SSB) of western Baltic cod was below B_{lim} (reduced reproductive capacity), and fishing mortality remains above F_{MSY}. According to the latest ICES Advice (October 2016), the state of the western Baltic cod stock remains poor and the fishing opportunities in this segment both in 2017 and the following years will be considerably lower than in previous years. Western Baltic herring has full reproductive capacity and fishing mortality F was below F_{MSY}. The sprat stock has full reproductive capacity, but F is above F_{MSY}. For dab, flounder and whiting a stock status classification is currently not possible. The plaice stock has full reproductive capacity and F was below F_{MSY}.

Demersal trawlers 18–24 m (DTS VL1824)

Vessels in this segment mainly fished plaice (1 435 tonnes) and Norway lobster (455 tonnes) in the North Sea. In the western Baltic Sea the main catches were of cod (573 tonnes) and herring (253 tonnes). They also caught sprat (449 tonnes) and dab (287 tonnes) across the Baltic Sea and cod (216 tonnes) in the eastern Baltic Sea. Furthermore, two different stocks of flounder were fished (Belt Sea and Øresund: 157 tonnes, southern Baltic: 390 tonnes) as well as plaice in the Kattegat, Belt Sea and Øresund (132 tonnes). Of the main stocks fished, four have full reproductive capacity (North Sea plaice, Kattegat, Belt Sea and Øresund plaice, Baltic sprat and western Baltic herring). The western cod stock had reduced reproductive capacity, and for Norway lobster there are many subpopulations whose stock status varies. For the eastern cod stock, Baltic dab and the flounder stocks in the southern Baltic Sea and the Belt Sea/Øresund, no classification is available from the ICES concerning reproductive capacity. For North Sea plaice, western Baltic herring and plaice in the Kattegat, Belt Sea and

Øresund fishing mortality F was below F_{MSY}, whereas F was above F_{MSY} for Baltic sprat and western Baltic cod.

Demersal trawlers 24-40 m (DTS VL2440)

Vessels in this segment mainly fished saithe (2 716 tonnes), cod (1 768 tonnes), plaice (747 tonnes), hake (630 tonnes), haddock (585 tonnes and Norway lobster (256 tonnes) in the North Sea. In the eastern Baltic Sea 258 tonnes of cod were caught, in the western Baltic Sea 272 tonnes of cod and in the southern Baltic Sea 102 tonnes of flounder. Of the main stocks fished, three have full reproductive capacity (plaice, saithe and northern stock of hake).

According to the ICES Advice of November 2016, the spawning stock biomass (SSB) is again above MSY $B_{trigger}$ for North Sea cod, which has therefore regained full reproductive capacity. Western Baltic cod had reduced reproductive capacity, whereas the spawning stock of North Sea haddock has dropped to below MSY $B_{trigger}$. As regards eastern Baltic cod and southern Baltic flounder, no classification is available from ICES concerning reproductive capacity, and for Norway lobster there are many subpopulations whose stock status varies.

Fishing mortality for North Sea plaice and saithe and the northern hake stock was below F_{MSY}. Fishing mortality for western Baltic cod and for North Sea cod and haddock was above F_{MSY}.

Demersal trawlers > 40 m (DTS VL40XX)

Vessels in this segment mainly fished saithe (3 541 tonnes), hake (146 tonnes) and cod (103 tonnes) in the North Sea. In the Barents Sea and the Norwegian Sea, they mainly fished northeast Arctic cod (6 336 tonnes), saithe (952 tonnes), redfish (497 tonnes) and haddock (170 tonnes). In West Greenland, catches of Greenland halibut totalled 1 889 tonnes in the NAFO area. The main catches in ICES sub-area 14 on the East Greenland Shelf and to the west of Iceland were Greenland halibut (4 420 tonnes), redfish (1 718 tonnes of *Sebastes mentella* and *S. norvegicus*) and cod (1 775 tonnes). Five of the fished stocks have full reproductive capacity (northeast Arctic cod, saithe and haddock, North Sea saithe and East Greenland/Iceland halibut). The spawning stock biomass (SSB) is again above MSY $B_{trigger}$ for North Sea cod, which has therefore regained full reproductive capacity. As regards cod off Greenland and halibut off West Greenland, no classification is available from ICES concerning reproductive capacity.

As far as redfish stocks are concerned, the reproductive capacity of *S. mentella* in the Barents Sea and on the Greenland shelf is not known. The reproductive capacity of *S. norvegicus* in the Barents Sea is also not known, and in line with the cautionary approach the stock should not be fished. On the other hand, the *S. norvegicus* stock off East Greenland/Iceland has full reproductive capacity.

Fishing mortality was below F_{MSY} for northeast Arctic cod, northeast Artic haddock and North Sea saithe, whereas *S. norvegicus* redfish was fished at F_{MSY} off East Greenland/Iceland. Fishing mortality was above F_{MSY} for North Sea cod and halibut off East Greenland/Iceland.

Pelagic trawlers 12-24 m (TM VL1218)

Vessels in this segment mainly fished herring (1 649 tonnes) in the western Baltic Sea. Western Baltic herring has full reproductive capacity and fishing mortality F was below F_{MSY}.

Pelagic trawlers 18-24 m (TM VL1824)

Vessels in this segment mainly fished herring (3 273 tonnes) in the western Baltic Sea in addition to some cod (201 tonnes) in the eastern Baltic Sea. Western Baltic herring has full reproductive capacity and fishing mortality F was below F_{MSY}. As regards the eastern Baltic cod, no classification is available from ICES concerning reproductive capacity.

Pelagic trawlers 24-40 m (TM VL2440)

In the North Sea vessels in this segment mainly fished sprat (2 418 tonnes) and herring (1 557 tonnes). They also fished sprat (2 554 tonnes) across the Baltic Sea as well as herring in the western Baltic Sea (3 010 tonnes) and herring (2 343 tonnes) and cod (207 tonnes) in the eastern Baltic Sea. Of the stocks fished, herring and sprat stocks have full reproductive capacity. As regards the eastern Baltic cod, no classification is available from ICES concerning reproductive capacity. For eastern and western Baltic herring and North Sea herring fishing mortality F_{2015} was below F_{MSY}, whereas for Baltic sprat it was above F_{MSY}. For short-lived species such as North Sea sprat, which are managed on the basis of an escapement strategy, F does not provide any useful information and F_{MSY} is therefore not defined. For North Sea sprat F_{2015} was above F_{CAP}, i.e. the fishing mortality derived from the escapement strategy that should never be exceeded.

Pelagic trawlers > 40 m (TM VL40XX)

Vessels in this segment mainly fished herring (42 798 tonnes), sprat (3 132 tonnes) and horse mackerel (1 874 tonnes) in the North Sea. They also caught 7 591 tonnes of sprat across the Baltic Sea and 1 997 tonnes of herring in the eastern Baltic Sea. The main catches in the northeast Atlantic were 23 406 tonnes of mackerel, 20 017 tonnes of blue whiting, 590 tonnes of argentine, 228 tonnes of greater silver smelt and 11 373 tonnes of horse mackerel. With regard to herring, a further 1 028 tonnes were caught in 6a North in addition to 2 582 tonnes of Atlanto-Scandian herring and 715 tonnes of beaked redfish in the Irminger Sea. Catches in the eastern central Atlantic (CECAF area) included 17 297 tonnes of sardine, 1 622 tonnes of chub mackerel, 802 tonnes of round sardinella and 779 tonnes of horse mackerel. In the southeast Pacific, 9 100 tonnes of Chilean jack mackerel (*Trachurus murphyi*) and 662 tonnes of Japanese mackerel were caught. In addition, 1 941 tonnes of sardines were caught in ICES sub-areas 7 and 8.

Of the 20 stocks mentioned above, six have full reproductive capacity (North Sea herring, eastern Baltic herring, Baltic sprat, North Sea sprat, northeast Atlantic mackerel and northeast Atlantic blue whiting). For ten stocks no classification is available or no longer applies (four stocks fished in the eastern central Atlantic, two stocks in the southeast Pacific, sardine in ICES sub-areas 7 and 8, and North Sea horse mackerel, greater silver smelt and argentine). For the Atlanto-Scandian herring the spawning stock biomass equals MSY $B_{trigger}$, and for herring in 6a N and beaked redfish in the Irminger Sea the biomass is below B_{lim}. This stock should therefore not be fished in 2017 in line with ICES recommendations. For short-lived species such as North Sea sprat, which are managed on the basis of an escapement strategy, F does not provide any useful information and F_{MSY} is therefore not defined. Fishing mortality F_{2015} was below F_{MSY} for Atlanto-Scandian herring, herring in the North Sea, eastern Baltic and 6a N and horse mackerel (western stock), whereas for North Sea sprat F_{2015} was below F_{CAP}, i.e. the fishing mortality derived from the escapement strategy that should not be exceeded. Fishing mortality was above F_{MSY} for Baltic sprat, northeast Atlantic mackerel and blue whiting.

iii. Fleet development

Overall, the German fishing fleet was reduced by 27 vessels (-1.88 %). As a result, capacity fell by 274 GT (-0.43 %) and 1 274 kW (-0.92 %).

Precise figures for changes to the German fishing fleet can be found in **Annex 3**, broken down by DCF segment.

1.B: Information on fishing effort limitations and their impact on fishing capacity

i. Fishing effort limitations

Fishing effort limitations were imposed on Germany by Regulation (EC) No 2347/2002 in respect of fishing for deep sea species and by Regulation (EC) No 1342/2008 in respect of demersal fisheries in the North Sea and adjacent areas. The fishing days restriction for the Baltic Sea was abolished in 2016.

ii. Impact of fishing effort limitations on fishing capacity

The existing fishing effort regulations (North Sea, western waters, deep sea) had the effect of restricting catches, which could only be partly compensated through transfers and international swaps.

Fishing for deep sea species under Regulation (EC) No 2347/2002 took place in western British waters in 2016. This involved the use of one fishing vessel from the pelagic fishing segment. Approximately 228 tonnes of greater silver smelt were caught in this area (ICES VIa). The fishing effort limitations imposed in respect of deep sea fishing were complied with, as Germany remained below the maximum allowable limit set for fishing opportunities and no further applications were submitted in respect of fishing for deep sea species.

The days of effort allocated for North Sea fishing under Regulation (EC) No 1342/2008 were just sufficient to cover the stocks and quotas in question. As in the previous year, Germany was only able to avoid exceeding the allocated number of days by carrying out swaps between individual gear groups as provided for by Article 17. In the beam trawl segment (BT2) in particular, swaps with other effort groups had to be carried out at the end of the management period.

The fishing effort regulations have been particularly detrimental to the flexibility of the German fishing fleet. For instance, certain vessels are unable to engage in cross-area fishing because the relevant fishing rights and references could not be obtained. Similarly, young fishermen or founders of new businesses find it difficult to enter the fisheries sector. The way fishing capacities are tied to specific areas by the various effort regulations is also seen as a major drawback for the fisheries. As a result, it has become common in Germany to distinguish between Baltic Sea capacities and North Sea capacities.

1.C: Information on compliance with the entry/exit scheme

In Germany, compliance with the capacity ceilings laid down in Annex II to Regulation (EC) No 1380/2013 is ensured by means of ‘capacity assurance licences’ (‘*Kapazitätssicherungslizenzen*’) which allow a vessel to leave the fleet temporarily and be put back into operation at a later date.

Capacity ceilings for Germany under Annex II to Regulation (EC) No 1380/2013:	71 117 GT	167 078 kW
Status of fleet as at 1 January 2003:	66 844 GT	161 045 kW
Status of fleet as at 31 December 2016:	62 742 GT	137 617 kW

Capacity reductions under Article 7 of Regulation (EC) No 2792/1999 (fleet reductions supported by public aid) in 2016: **None**

1.D: Fleet management

i. Assessment of the fleet management system (weaknesses, strengths)

The fleet structure as it currently stands is virtually unchanged. The reduction of the fleet by 27 fishing vessels is mainly due to the withdrawal of 23 static net vessels less than 12 metres in length (segments PG VL0010, PG VL1012).

The overall fleet structure remains just as heterogeneous and diverse as before, as can be seen from the individual segments. Indeed, this has been expressly promoted by fleet management and is evident, for example, from the special emphasis put on maintaining traditional static net fishing when distributing fishing opportunities.

Another characteristic of the German fleet is its relatively high proportion of smaller vessels. In line with tradition these businesses often have several small-class vessels of various sizes that can be deployed as and when needed. For instance, a smaller vessel might be used to catch herring or fresh-water fish in a protected area near the coast (passive fishing), while a larger vessel is used to catch cod and flatfish further off the coast (passive or active fishing).

Fleet management in Germany is further characterised by the wish to uphold the tradition of fishing as a family-run side business, also to avoid harbours being abandoned and thus remain attractive to tourists. This type of fishing has also acquired historical fishing rights that have to be taken into account when fishing opportunities are allocated under the German Marine Fisheries Act. It should be noted in this regard that although fishing as a side business generally involves very low catches, maintaining them is a stated aim.

ii. Plans to improve the fleet management system

An analysis of the trends in the German fleet shows an overall linear descending curve for the number of vessels and an associated drop in fishing capacity from 2 315 vessels in 2000 to 1 413 vessels in 2016, with a gradual levelling off of the curve.

Given the positive signs regarding the development of certain stocks of importance to Germany, fleet management must aim to ensure that the rising fishing opportunities continue to be efficiently managed. The existing market mechanisms used by fleet management are currently regarded as sufficient.

iii. Information on the general status of compliance with fleet policy instruments

Firstly, it should be noted that with around 5% of overall catches and 2% of overall fleet capacity, Germany has a well-balanced fishing capacity to fishing opportunities ratio compared with other EU Member States. Before the upper reference limits were set in 2003, Germany always managed to meet the MAP targets in place at the time. In turn, this was reflected in the level set for the upper capacity limit.

1.E: Information on changes to the administrative procedures relevant to fleet management

In 2010, work began on setting up a new comprehensive fisheries database based on the new control regulations (Regulations (EC) No 1224/2009 and (EU) No 404/2011). With a view to meeting the extensive cross-checking obligations laid down in Article 109 of Regulation (EC) No 1224/2009, the following are integrated into a standardised IT application at the Fisheries Data Centre: all areas of administration such as the fishing vessel register, catch data entry, sales data entry, quota and fishing effort entry and allocation, along with all monitoring functions across all areas of administration, VMS data and inspection data plus the reporting procedure. The register of fishing vessels is now operational and structures are in place to implement catch data entry.

2. Analysis of balance indicators and balance assessment

The balance indicators have been analysed by DCF segment (Annex III to Commission Decision 2010/93/EU). The various indicators are set out in detail for each segment below. The technical indicator was established by Germany, whereas for the biological and economic indicators STECF values (https://stecf.jrc.ec.europa.eu/documents/43805/1453963/2016-10_EWG+16-09+-+Balance+indicator+table.xlsx) were used. For the pelagic fishing segments (TM VL1824, TM VL2440 and TM VL40XX) the indicators described have been calculated by Germany since no biological indicator calculations are available from the STECF. With respect to the biological indicators, the Sustainable Harvest Indicator (SHI) values relate to 2015, since the 2016 values for fishing mortality F were not available at the time of calculating the indicators and drawing up this report. The catches reported in this context also relate to 2015, except where otherwise indicated. The stock-at-risk (SAR) indicator also relates to 2015, and given that no SAR values are available from the STECF for 2015 the indicator values contained in this report have been set by Germany.

Vessels using passive fishing gear < 10 m (PG VL0010)

PG0010:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.26	0.31	0.26	0.35	0.33	0.25	0.36	0.36
SAR	1	2	4	3	3	3	1	
SHI	2.39	2.43	2.43	2.43	2.42	2.41	2.12	
CR/BER	0.16	1.01	0.72	0.82	0.44	1.36	1.00	
Rofta	-36.1	2.0	-14.6	-11.4	-27.8	18.9	0.26	
Number of vessels	172	161	155	144	132	130	129	135
GT	846	814	798	721	659	656	672	721
kW	8 135	7 824	7 894	7 263	6 818	6 722	6 779	7 407

(a) Technical indicator

Within the passive fishing gear segment (PG VL0010), the calculation includes all active vessels that are required to keep a fishing logbook. This applies to all vessels of 8 metres or more in the Baltic Sea (and all vessels of 10 metres or more in other fishing areas). The reasoning behind this is that the days can only be calculated with confidence if there is a logbook. As in previous years, some very low values can be seen within this group of vessels. This is primarily down to the traditional and highly regionalised nature of this segment. Most of the vessels are used in the context of a side business, mostly just for a couple of days, such as on weekends, or seasonally for just a few weeks. This segment is maintained thanks to the political objective of keeping the German fisheries industry as diverse as possible, which also includes fishing as a side business, in the same way that agriculture as a side business is also encouraged.

On the other hand, the relatively few vessels operated as a main business have a significantly higher number of sea days. As a result, the technical indicator values calculated for the majority of side business vessels range from 0.1 to 0.3, whereas the values for fishing businesses operating as a main business (i.e. those that make a living from fishing) were significantly higher at 0.7 or above.

There were no changes compared to the previous year.

(b) Biological indicators

Sustainable harvest indicator (SHI)

Vessels in this segment mainly fished herring and cod in the western Baltic Sea, for which a stock assessment is available. While fishing mortality F_C for herring was below F_{MSY}, F_C for cod was well above F_{MSY}, resulting in a high SHI value of 2.12. According to the latest ICES Advice (October 2016), the western Baltic cod stock remains in a poor condition. Fishing mortality has somewhat deteriorated compared to the previous year, leading to a slightly lower SHI value. An SHI value > 1 indicates that the fleet segment concerned is, on average, economically dependent on stocks with a fishing mortality that is currently higher than the maximum sustainable yield ($Fc > F_{MSY}$) level. However, the fleet report only indicates SHI values for segments for which the portion of the landings value that can be used to calculate the indicator exceeds 40 % of the total value of landings by that segment. In this case the value calculated by the STECF is 38 %, i.e. < 40 %, and is therefore not taken into account in the assessment.

Stocks-at-Risk (SAR)

For this segment one stock was considered at risk in 2015, whereas in 2014 three stocks had been considered at risk by the STECF. The stock in question is the western Baltic cod, for which the spawning stock biomass is below B_{lim}. More than 10 % of the total landings in this segment are of this stock. According to the latest ICES Advice (October 2016) the western Baltic cod stock remains in a poor condition, meaning that there will be at least one stock at risk in this segment in the next few years.

(c) Economic indicators

In 2015 the CR/BER equalled 1, and the RoFTA fell but remained positive. The economic indicators for this fleet segment do not therefore point to any overcapacity. This is corroborated by the fact that many vessels in this segment are not primarily operated for commercial reasons but are used for amateur fishing or in the context of a side business. Here different cost structures are at play which are not related to the balance between fishing opportunities and capacity.

(d) Overall assessment

Overall this segment is in **imbalance** according to the indicators analysed. However, it needs to be taken into account, as argued in Sections 3 and 5 above, that the indicators are not particularly meaningful for this segment. The segment is severely affected by the continuing poor state of the western Baltic cod stock (see Section 1.A.ii) and is included in the action plan (Section 5).

Vessels using passive fishing gear 10-12 m (PG VL1012)

PG1012:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.53	0.51	0.48	0.56	0.51	0.41	0.44	0.43
SAR	0	1	2	1	0	1	1	
SHI	2.35	2.36	2.29	2.31	2.12	2.13	1.97	
CR/BER	0.38	0.48	0.38	0.56	0.48	0.12	0.42	
Rofta	-30.9	-26.4	-29.6	-20.8	-24.0	-42.8	-28.4	
Number of vessels	76	72	66	68	66	67	64	58
GT	840	790	719	750	717	723	695	646
kW	6 357	6 122	5 494	5 948	5 692	5 847	5 570	5 199

(a) Technical indicator

As in previous years, this group of vessels has a fairly low indicator value of 0.43. The reasons for this are similar to those set out for segment PG VL0010 above. Many vessels in this segment are used for fishing as a side business, and the number of sea days is often far lower than is the case for vessels operated as a main business.

The indicator value of 0.43 is similar to that of the past two years and is therefore constant.

(b) Biological indicators

Sustainable harvest indicator (SHI)

Vessels in this segment mainly fished herring and cod in the western Baltic Sea, for which a stock assessment is available. While fishing mortality F_C for herring was below F_{MSY}, F_C for cod was well above F_{MSY}, resulting in a high SHI value of 1.97. According to the latest ICES Advice (October 2016), the western Baltic cod stock remains in a poor condition. Fishing mortality has somewhat deteriorated compared to the previous year, leading to a slightly lower SHI value.

Stocks-at-Risk (SAR)

For this segment one stock was considered at risk by the STECF in 2015, as in the previous year. The stock in question is the western Baltic cod, for which the spawning stock biomass is below B_{lim}. More than 10 % of the total landings in this segment are of this stock. According to the latest ICES Advice (October 2016) the western Baltic cod stock remains in a poor condition, meaning that there will be at least one stock at risk in this segment in the next few years.

(c) Economic indicators

Although both the CR/BER and the RoFTA improved for this fleet segment in 2015, their values remained below 1 (CR/BER) or negative (RoFTA). The economic indicators for this

fleet segment do not therefore necessarily point to any overcapacity. However, it needs to be taken into account that many vessels in this segment are not primarily operated for commercial reasons but are used for amateur fishing or in the context of a side business. Here different cost structures are at play which are not related to the balance between fishing opportunities and capacity. Moreover, it should be borne in mind that these vessels account for a very small share of German catches and that the quantities fished are in any case limited by technical constraints. Also, a notable portion of their catches consists of fresh water species for which there is no quota and which are not subject to EU quota management. Any form of overfishing by these vessels can thus be technically ruled out.
The method laid down for determining the value of the vessels (‘perpetual inventory method’, PIM) has an impact on both indicators as it leads to considerable overestimation of both the value of the vessels and their depreciation. Both the value of the vessels and the costs actually incurred by the businesses are substantially lower than the mathematical depreciation levels and opportunity costs embedded in the indicators.

(d) Overall assessment

Overall this segment is in **imbalance** according to the indicators analysed. However, it needs to be taken into account, as argued in Sections 3 and 5 above, that the indicators are not particularly meaningful for this segment. The segment is severely affected by the significantly deteriorated state of the western Baltic cod stock (see Section 1.A.ii).

Drift or fixed netters 12-18 m (DFN VL1218)

DFN1218:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.48	0.46	0.51	0.72	0.44	0.57	0.48	0.58
SAR	1	1	2	2	1	1	0	
SHI	2.17	1.84	1.57	1.62	1.55	1.19	1.06	
CR/BER	1.47	2.42	0.50	7.54	3.85	1.85	-1.51	
Rofta	18.7	58.5	-18.5	178.9	98.4	36.8	-96.9	
Number of vessels	16	12	10	7	11	9	5	5
GT	365	273	237	147	272	220	121	132
kW	2 216	1 666	1 309	842	1 592	1 182	1 182	821

(a) Technical indicator

Only five fishing vessels were taken into account to calculate the technical indicator in segment DFN VL1218 in the reporting year. The relatively poor value of 0.58 can be explained by the fact that one vessel recorded a considerably higher number of sea days (234 days) than the other vessels in the segment. In spite of this, a far better result was in achieved than in 2015.

(b) Biological indicators

Sustainable harvest indicator (SHI)
Vessels in this segment mainly fished sole and cod in the North Sea and herring in the western Baltic Sea. As F_C is barely above F_{MSY} for cod, exactly at F_{MSY} for sole and below F_{MSY} for herring, the SHI is relatively low at 1.06. In the relevant time series (2008-2015) a clear positive trend can be observed, with the current SHI value approaching 1.

Stocks-at-Risk (SAR)
For this segment no stock was considered at risk in 2015.
(c) Economic indicators

In 2015 both the CR/BER and the RoFTA turned negative. Both economic indicators show a decreasing trend, a sign of possible overcapacity. However, as this occurs for the first time in the period considered, it should not be given too much weight.

(d) Overall assessment

Overall this segment is in **balance** according to the indicators analysed. The main reason for this assessment is the positive SHI trend. For the above reasons and in view of the reservations discussed in points 3 and 5, the technical indicator values could not be taken into account for the overall assessment. No stock at risk is fished. In addition, the number of vessels in this segment dropped significantly (from 16 to 5) between 2009 and 2015.

Drift or fixed netters 24-40 m (DFN VL2440)

DFN2440:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.50	0.71	0.64	0.66	0.85	0.64	0.81	0.75
SAR	0	0	0	1	0	0	0	
SHI	2.06	1.91	1.67	1.50	1.25	1.20	1.07	
CR/BER	-0.82	1.63	0.73	-0.22	0.37	0.13	0.77	
Rofta	-59.5	45.9	-42.2	-91.7	-50.8	-53.2	-12.6	
Number of vessels	5	5	4	5	5	5	4	4
GT	877	877	729	877	877	877	729	729
kW	1 897	1 897	1 475	1 897	1 897	1 897	1 475	1 475

(a) Technical indicator

Four vessels were taken into account to calculate the technical indicator. These achieved a good value of 0.75, similar to the level of the previous year.

(b) Biological indicators

Sustainable harvest indicator (SHI)

Fishing vessels in this segment mainly fished anglerfish in the northeast Atlantic, for which there is no assessment. The share of the value of landings in this segment that can be used to calculate the indicator was calculated by the STECF at 27 %, and the resulting SHI value of 1.07 cannot therefore be taken into account to assess the segment.

Stocks-at-Risk (SAR)

For this segment no stock was considered at risk in 2015.

(c) Economic indicators

The CR/BER and the RoFTA both show negative values. There is, however, a positive trend.

(d) Overall assessment

No clear assessment can be made for this segment. The technical indicator remains acceptable, the SHI biological indicator cannot be taken into account, no stock at risk is fished, and the economic indicators are negative.

Fishing vessels using pots and/or traps 12–18 m (FPO VL1218)

Over the past few years this segment has consisted of only one fishing vessel with sporadic activity and is therefore not taken into account in the analysis of balance indicators.

Fishing vessels using pots and/or traps 24–40 m (FPO VL2440)

Over the past few years this segment has consisted of only one fishing vessel with sporadic activity and is therefore not taken into account in the analysis of balance indicators.

Beam trawlers 10-12 m (TBB VL1012)

TBB1012:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.33	0.45	0.31	0.48	0.64	0.48	0.76	0.79
SAR	0	0	0	0	0	0	0	
SHI	2.06	2.04	1.75	1.40	1.85	1.05	0.95	
CR/BER	2.27	1.11	-0.35	3.19	3.31	1.08	0.13	
Rofta	46.7	8.2	-75.0	124.0	133.1	6.6	-67.5	
Number of vessels	5	7	6	5	5	5	5	5
GT	61	85	74	63	63	63	63	63
kW	457	624	564	515	515	515	515	515

(a) Technical indicator

Despite fishing effort limitations on beam trawling and seasonal periods of inactivity which considerably affect businesses in the common shrimp fisheries, the five vessels in this segment achieved a very good overall value of 0.79. To a large extent this is also due to the fact that the cutters typically engage in similar fishing activities. The positive trend of the previous year was reconfirmed.

(b) Biological indicators

Sustainable harvest indicator (SHI)
Fishing vessels in this segment fished almost exclusively for common shrimp, for which there is no assessment. The SHI value of 0.95 calculated by the STECF cannot therefore be taken into account to assess the segment.

Stocks-at-Risk (SAR)
For this segment no SAR assessment was made by the STECF for 2015. An analysis carried out by Germany based on the relevant criteria showed no stock at risk in this segment.

(c) Economic indicators

Both the CR/BER and the RoFTA show negative values for the first time since 2011 in the period considered, pointing to overcapacity in this fleet segment. However, since the segment counts only a few vessels and is therefore sensitive to outliers, these indications should not be taken into account for the time being.

(d) Overall assessment

Overall this segment is in **balance** according to the indicators analysed. The technical indicator is positive. The SHI biological indicator is on a positive trend but cannot be taken into account for the reasons set out above. No stock at risk is fished. The economic indicators became negative for the first time last year.

Beam trawlers 12–18 m (TBB VL1218)

TBB1218:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.64	0.65	0.60	0.60	0.56	0.60	0.60	0.58
SAR	0	0	0	0	0	0	0	
SHI	2.62	2.92	2.64	3.28	3.32	2.99	1.81	
CR/BER	1.23	1.42	0.97	2.74	2.57	1.79	1.50	
Rofta	15.1	22.7	-1.3	87.7	92.9	45.1	35.0	
Number of vessels	140	134	127	118	120	117	112	111
GT	4 268	4 075	3 876	3 597	3 663	3 627	3 457	3 479
kW	26 791	25 650	24 308	22 678	22 962	22 651	21 597	21 671

(a) Technical indicator

The calculation is based on 112 fishing vessels. The value of 0.58 is similar to the level seen in the past few years. This segment is characterised by wide variation in the number of sea days. This is largely due to the fact that some of the vessels in this segment carry out day fishing trips close to their home port, and thus only fish on days with good catch possibilities within a limited area of operation, whereas other vessels carry out fishing trips over several days covering much larger areas and therefore record more sea days.

(b) Biological indicators

Sustainable harvest indicator (SHI)
Fishing vessels in this segment fished almost exclusively for common shrimp, for which there is no assessment. The SHI value of 1.81 calculated by the STECF cannot therefore be taken into account to assess the segment.

Stocks-at-Risk (SAR)
For this segment no SAR assessment was made by the STECF for 2015. An analysis carried out by Germany based on the relevant criteria showed no stock at risk in this segment.

(c) Economic indicators

For several years neither the CR/BER nor the RoFTA has pointed to any overcapacity in this fleet segment.

(d) Overall assessment

Overall this segment is in **balance** according to the indicators analysed. The technical indicator remains stable at 0.6, the SHI biological indicator cannot be taken into account, no stock at risk is fished, and the economic indicators are positive.

Beam trawlers 18–24 m (TBB VL1824)

TBB1824:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.56	0.60	0.58	0.63	0.65	0.62	0.69	0.57
SAR	0	0	0	0	0	0	0	
SHI	2.42	2.48	2.28	2.53	3.30	1.85	1.01	
CR/BER	0.84	1.11	0.59	1.91	1.98	1.43	1.20	
Rofta	-4.2	6.3	-16.2	36.2	39.4	19.5	10.1	
Number of vessels	63	61	62	63	67	63	63	65
GT	3 892	3 521	3 679	3 756	4 104	3 850	3 706	3 976
kW	13 652	13 175	13 394	13 616	14 537	13 653	13 477	14 278

(a) Technical indicator

The sea days of 65 fishing vessels were taken into account to calculate the indicator. Regrettably, beam trawlers in the 18-24 metre length class failed to reach the level achieved in the previous year. The reason for this is that one vessel in this segment logged more than 280 sea days, which resulted in a too high baseline for the ‘registered’ indicator. It should be noted in this respect that most vessels in the fleet logged between 150 and 220 say days. It should also be kept in mind that the smaller vessels in this segment suspend almost all activity during winter, while the larger vessels continue to engage in fishing. In contrast to the registered indicator, the theoretical segment (based on 220 days) achieves a good value of 0.74.

(b) Biological indicators

Sustainable harvest indicator (SHI)
Fishing vessels in this segment fished almost exclusively for common shrimp, for which there is no assessment. The positive SHI value of 1.01 calculated by the STECF cannot therefore be taken into account to assess the segment.

Stocks-at-Risk (SAR)
For this segment no SAR assessment was made by the STECF for 2015. An analysis carried out by Germany based on the relevant criteria showed no stock at risk in this segment.

(c) Economic indicators

For several years neither the CR/BER nor the RoFTA has pointed to any overcapacity in this fleet segment.

(d) Overall assessment

Overall this segment is in **balance** according to the indicators analysed. The technical indicator and the economic indicators are positive or on a positive trend. The SHI biological indicator cannot be taken into account for the reasons set out above. No stock at risk is fished.

Beam trawlers 24-40 m (TBB VL2440)

TBB2440:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.77	0.83	0.54	0.78	0.85	0.82	0.68	0.91
SAR	0	0	0	0	0	0	0	
SHI	1.89	1.81	1.51	1.48	1.26	1.12	0.98	
CR/BER	1.98	1.04	0.69	1.00	2.03	1.33	2.02	
Rofta	39.4	3.5	-12.2	-0.6	41.7	12.2	35.1	
Number of vessels	7	8	8	9	8	10	10	9
GT	1 424	1 693	1 693	1 752	1 559	2 021	2 021	1 828
kW	4 874	5 867	5 867	5 971	5 411	6 721	6 721	6 161

(a) Technical indicator

The sea days of nine vessels were taken into account to calculate the indicator. The value of 0.91, which is the best result achieved by this segment in the past few years, is due to very homogeneous fishing activity.

(b) Biological indicators

Sustainable harvest indicator (SHI)
Fishing vessels in this segment mainly fished plaice, mussels, sole and common shrimp in the North Sea. For plaice and sole a stock assessment is available which shows that fishing mortality F_C was below F_{MSY} for plaice and exactly at F_{MSY} for sole, resulting in a SHI value just below 1 (0.98).

Stocks-at-Risk (SAR)
For this segment no SAR assessment was made by the STECF for 2015. An analysis carried out by Germany based on the relevant criteria showed no stock at risk in this segment.

(c) Economic indicators

Neither the CR/BER nor the RoFTA points to any overcapacity in this fleet segment.

(d) Overall assessment

Overall this segment is in **balance** according to the indicators analysed. The technical indicator can be taken into account only partially. The SHI biological indicator is on a positive trend, and no stock at risk is fished. The economic indicators are positive.

Beam trawlers > 40 m (TBB VL40XX)

TBB40XX:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.61	1.00	0.63	0.54	0.53	0.62	1.00	0.94
SAR						0	0	
SHI						1.18	0.97	
CR/BER								
Rofta								
Number of vessels	1	2	1	2	2	2	2	2
GT	446	791	446	791	791	791	791	791
kW	1 471	2 221	1 471	2 221	2 221	2 221	2 221	1 853

(a) Technical indicator

The two vessels taken into account in this segment achieved a very good value of 0.94. However, the indicator value is not particularly meaningful due to the small number of vessels.

(b) Biological indicators

Sustainable harvest indicator (SHI)
As no STECF calculation is available for this segment, a German calculation value has been used. Vessels in this segment mainly fished mussels in the North Sea, for which there is no stock assessment, in addition to plaice and sole in the North Sea. For plaice fishing mortality F_C was below F_{MSY} and for sole exactly at F_{MSY}, resulting in a SHI value just below 1 (0.97).

Stocks-at-Risk (SAR)
For this segment no SAR assessment was made by the STECF for 2015. An analysis carried out by Germany based on the relevant criteria showed no stock at risk in this segment.

(c) Economic indicators

For reasons of data protection, economic data from this segment are grouped together with data for segment TBB VL2440.

(d) Overall assessment

No clear assessment can be made for this segment. The indicators are not pertinent because they are based on only two vessels. No stock at risk is fished.

Demersal trawlers 10-12 m (DTS VL1012)

DTS1012:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.54	0.56	0.58	0.59	0.42	0.48	0.45	0.34
SAR	0	1	2	1	1	1	1	
SHI	2.59	2.78	3.05	2.50	2.77	2.62	2.03	
CR/BER	-0.08	1.18	0.67	0.56	0.66	0.39	0.41	
Rofta	-70.8	12.3	-19.5	-29.0	-23.6	-47.6	-57.7	
Number of vessels	13	15	15	10	12	11	10	10
GT	213	244	233	146	183	169	154	156
kW	2 055	2 202	2 202	1 441	1 803	1 608	1 425	1 433

(a) Technical indicator

The ten vessels in this segment achieved a value of 0.34, which is worse than in the previous year. One reason for this is that one vessel in this segment recorded a significantly higher number of sea days than the other vessels. This results in a high baseline which produces a much lower indicator value in the calculation of the 'registered' indicator.

(b) Biological indicators

Sustainable harvest indicator (SHI)
Vessels in this segment mainly fished cod and herring in the western Baltic Sea and dab and sprat across the Baltic Sea. Fishing mortality F_C for western cod, the most important stock in this segment, is well above F_{MSY} and the SHI is therefore high at 2.03. According to the latest ICES Advice (October 2016), the western Baltic cod stock remains in a poor condition. However, since fishing mortality is on a downward trend, the SHI value is likely to improve in the near future.

Stocks-at-Risk (SAR)
For this segment one stock was considered at risk by the STECF in 2015, as in the previous year. The stock in question is the western Baltic cod, for which the spawning stock biomass is

below B_{lim}. More than 10 % of the total landings in this segment are of this stock. According to the latest ICES Advice (October 2016) the western Baltic cod stock remains in a poor condition, meaning that there will be at least one stock at risk in this segment in the next few years.

(c) Economic indicators

Both the CR/BER and the RoFTA have been unfavourable in this segment for years.

(d) Overall assessment

Overall this segment is in **imbalance** according to the indicators analysed. However, it needs to be taken into account, as argued in Sections 3 and 5 above, that the indicators are not particularly meaningful for this segment. The segment is severely affected by the continuing poor state of the western Baltic cod stock.

Demersal trawlers 12–18 m (DTS VL1218)

DTS1218:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.49	0.47	0.60	0.71	0.53	0.53	0.52	0.53
SAR	1	1	2	1	2	1	1	
SHI	2.67	2.53	2.67	2.54	2.52	2.51	2.40	
CR/BER	0.68	0.81	0.60	1.00	0.82	0.80	0.74	
Rofta	-9.4	-7.6	-16.7	-0.7	-7.5	-8.1	-10.7	
Number of vessels	39	37	33	27	30	29	28	27
GT	1 310	1 239	1 129	923	1 024	1 008	826	866
kW	7 283	6 767	6 088	4 960	5 514	5 414	4 694	4 918

(a) Technical indicator

The sea days of 27 vessels were taken into account to calculate the indicator. Although the average value of 0.53 is a slight improvement on the previous year (2015 = 00.52), it remains rather weak. The fishing effort regulations of Regulation (EC) No 1342/2008, which were abolished for this fishery only in 2017, are partly to blame for this. Many vessels in this segment typically have fewer kilowatt days at their disposal to fish their quota, which has an adverse impact on the overall result when the indicator is calculated.

(b) Biological indicators

Sustainable harvest indicator (SHI)

Vessels in this segment mainly fished cod and herring in the western Baltic Sea and dab and sprat across the Baltic Sea. Fishing mortality F_C for western cod, the most important stock in this segment in value terms, is well above F_{MSY} and the SHI is therefore high at 2.40. According to the latest ICES Advice (October 2016), the western Baltic cod stock remains in a poor condition. However, since fishing mortality is on a downward trend, the SHI value is likely to improve in the near future.

Stocks-at-Risk (SAR)

For this segment one stock was considered at risk by the STECF in 2015, as in the previous year. The stock in question is the western Baltic cod, for which the spawning stock biomass is below B_{lim}. More than 10 % of the total landings in this segment are of this stock. According to the latest ICES Advice (October 2016) the western Baltic cod stock remains in a poor condition, meaning that there will be at least one stock at risk in this segment in the next few years.

(c) Economic indicators

Both the CR/BER and the RoFTA have been unfavourable in this segment for years.

(d) Overall assessment

Overall this segment is in **imbalance** according to the indicators analysed. The segment is severely affected by the continuing poor state of the western Baltic cod stock.

Demersal trawlers 18–24 m (DTS VL1824)

DTS1824:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.64	0.58	0.60	0.62	0.60	0.59	0.60	0.65
SAR	1	0	2	1	1	1	1	
SHI	2.14	1.65	1.79	1.92	1.62	1.54	1.41	
CR/BER	0.90	1.19	0.91	0.51	2.84	2.22	1.32	
Rofta	-0.5	9.0	-3.0	-15.9	50.9	37.6	12.3	
Number of vessels	28	30	29	20	18	17	16	13
GT	3 045	3 215	3 169	2 231	2 064	1 847	1 724	1 444
kW	6 122	6 525	6 347	4 330	3 925	3 704	3 485	2 824

(a) Technical indicator

The sea days of only 13 fishing vessels have been taken into account. The value of 0.65 is a clear improvement on 2015 and the best overall result in recent years. It is worth noting that one vessel in this segment recorded a relatively high number of sea days (303), whereas the number of days was far lower for many of the other vessels. This led to an imbalance which, as in previous years, can also be ascribed to the fishing effort regulations of Regulation (EU)

No 1348/2008. These regulations no longer apply to demersal trawlers as from 2017. If the theoretical approach is taken to assess this segment (220 days), a very good value of 0.89 is achieved, which would seem to point to high homogeneity overall in this vessel category.

(b) Biological indicators

Sustainable harvest indicator (SHI)

Vessels in this segment fished a number of different stocks in the North Sea and the Baltic Sea. The most important stock, in both volume and value terms, the North Sea plaice, is fished sustainably and fishing mortality F_C is just under F_{MSY}. The SHI value of this segment is 1.41.

Stocks-at-Risk (SAR)

For this segment one stock was considered at risk by the STECF in 2015, as in the previous year. The stock in question is the western Baltic cod, for which the spawning stock biomass is below B_{lim}. More than 10 % of the total landings in this segment are of this stock. According to the latest ICES Advice (October 2016) the western Baltic cod stock remains in a poor condition, meaning that there will be at least one stock at risk in this segment in the next few years.

(c) Economic indicators

While both CR/BER and RoFTA have deteriorated compared to the previous year, they are not at a level pointing to overcapacity.

(d) Overall assessment

No clear assessment can be made for this segment. The technical indicator remains stable at or slightly above 0.6. The SHI is on a positive trend, and one stock at risk is fished. The economic indicators are positive. The number of vessels has dropped significantly from 30 (in 2010) to 13 (in 2016).

Demersal trawlers 24-40 m (DTS VL2440)

DTS2440:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.62	0.50	0.57	0.65	0.68	0.59	0.66	0.70
SAR	1	1	0	1	0	0	0	
SHI	1.58	1.40	1.27	1.17	1.07	1.08	1.01	
CR/BER	1.02	1.51	1.87	1.05	1.36	1.30	2.02	
Rofta	4.1	20.4	32.5	3.2	12.6	8.8	31.1	
Number of vessels	16	16	13	10	11	12	10	9
GT	3 439	3 431	3 033	2 523	2 660	2 981	2 768	2 343
kW	7 409	6 821	5 994	4 683	4 830	5 361	5 295	4 275

(a) Technical indicator

The calculation is based on the sea days of nine fishing vessels. The average value of 0.70 is once again an improvement on previous years, reflecting a positive trend in demersal trawling. It is worth noting that, as in the previous year, two vessels in this segment recorded a relatively high number of sea days (346 and 326, respectively), whereas the seven other vessels logged up to 100 days less, albeit with an acceptable average of 200 sea days. This resulted in a slight imbalance in the 'registered' indicator. Had the theoretical indicator (220 days) been taken into account, the value achieved by this segment would have been a very good 1.10.

(b) Biological indicators

Sustainable harvest indicator (SHI)
The main stocks fished by this segment were North Sea saithe, cod, haddock, plaice and hake. As fishing mortality F_C for saithe, plaice and hake is below F_{MSY}, the SHI stands at a low 1.01.

Stocks-at-Risk (SAR)
For this segment no SAR assessment was made by the STECF for 2015. An analysis carried out by Germany based on the relevant criteria showed no stock at risk in this segment.

(c) Economic indicators

Neither the CR/BER nor the RoFTA points to any overcapacity in this fleet segment.

(d) Overall assessment

Overall this segment is in **balance** according to the indicators analysed. The theoretical technical indicator and the SHI are close to 1. No stock at risk is fished. The economic indicators are positive. Moreover, the number of fishing vessels has dropped from 16 (2010) to nine (2016).

Demersal trawlers > 40 m (DTS VL40XX)

DTS40XX:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.82	0.84	0.92	0.83	0.78	0.73	0.70	0.80
SAR	1	1	2	2	1	1	0	
SHI	1.05	1.02	1.10	1.02	1.00	0.93	1.01	
CR/BER	0.47	0.81	0.68	0.75	0.62	0.86	0.98	
Rofta	-17.6	-4.7	-9.1	-8.5	-13.5	-4.4	-0.2	
Number of vessels	8	8	8	8	7	6	7	7
GT	13 215	13 215	13 215	13 215	10 247	8 650	12 898	12 898
kW	18 651	18 651	18 651	18 651	14 151	11 724	15 724	15 724

(a) Technical indicator

The calculation is based on the sea days of seven fishing vessels. A good value of 0.80 was achieved, which is also the best result of the past four years. The fact that large-scale deep-sea fisheries are put on a par with large-scale cutter fisheries has a negative impact on this indicator. The deep-sea vessels recorded up to 300 sea days, whereas the large cutters only recorded 200 days on average.

(b) Biological indicators

Sustainable harvest indicator (SHI)
For many of the main stocks fished in this segment, fishing mortality F_C is either below F_{MSY} (North Sea saithe, northeast Arctic cod, northeast Arctic haddock) or slightly above it (North Sea cod, East Greenland/Iceland halibut), resulting in a SHI just above 1 (1.01).

Stocks-at-Risk (SAR)
For this segment no SAR assessment was made by the STECF for 2015. An analysis carried out by Germany based on the relevant criteria showed no stock at risk in this segment.

(c) Economic indicators

Both the CR/BER and the RoFTA have been unfavourable in this segment for years. There is, however, a positive trend. Moreover, the vessels concerned mostly belong to vertically integrated businesses where catches undergo further processing, and this is where most of the value is created. According to the operators, the vessels' fishing activities are profitable when account is taken of the processing activity.

The apparently poor economic indicators are due to the assumed value of catches, which has been set relatively low.

(d) Overall assessment

Overall this segment is in **balance** according to the indicators analysed. The technical indicator shows a good value and the SHI equals 1. No stock at risk is fished. Although the economic indicators are negative, the vessels concerned belong to vertically integrated businesses making their profit not so much from fishing as from fish processing.

Pelagic trawlers 12-24 m (TM VL1218)

TM1218:	2009	2010	2011	2012	2013	2014	2015	2016
Tech							0.88	0.89
SAR							0	
SHI								
CR/BER								
Rofta								
Number of vessels	0	0	0	0	0	0	2	2
GT	-	-	-	-	-	-	122	122
kW	-	-	-	-	-	-	439	439

(a) Technical indicator

The vessels in this segment achieved a very good value of 0.89. This result is, however, not particularly meaningful since only two vessels could be taken into account.

(b) Biological indicators

Sustainable harvest indicator (SHI)

This segment fishes only herring in the western Baltic Sea. For all three herring stocks, fishing mortality F_C was below F_{MSY}.

Stocks-at-Risk (SAR)

No stock at risk is fished.

(c) Economic indicators

For reasons of data protection, no economic data can be published with respect to this segment.

(d) Overall assessment

No clear assessment can be made for this segment. The indicators are not pertinent because they are based on only two vessels. No stock at risk is fished.

Pelagic trawlers 18-24 m (TM VL1824)

TM1824:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	-	0.85	1.00	1.00	1.00	0.88	0.67	0.70
SAR						0	0	
SHI						1.19	0.86	
CR/BER								
Rofta								
Number of vessels	0	2	1	1	1	2	2	4
GT	-	239	107	107	107	239	207	354
kW	-	442	221	221	221	442	441	882

(a) Technical indicator

The vessels in this segment achieved an average value of 0.70, which is a slight improvement on the previous year. However, the result is not very meaningful in terms of assessing balance since only four vessels could be taken into account.

(b) Biological indicators

Sustainable harvest indicator (SHI)
As no STECF calculation is available for this segment, a German calculation value has been used. Vessels in this segment mainly fished herring and cod in the eastern Baltic Sea. For the most important stock in quantity terms, the western herring, fishing mortality F_C was below F_{MSY}, resulting in an SHI well below 1 (0.86).

Stocks-at-Risk (SAR)
For this segment no SAR assessment was made by the STECF for 2015. An analysis carried out by Germany based on the relevant criteria showed no stock at risk in this segment.

(c) Economic indicators

For reasons of data protection, no economic data can be published with respect to this segment.

(d) Overall assessment

No clear assessment can be made for this segment. The indicators are not pertinent because they are based on only four vessels. No stock at risk is fished.

Pelagic trawlers 24-40 m (TM VL2440)

TM2440:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.52	0.98	0.71	0.99	1.00	1.00	0.69	0.89
SAR						0	0	
SHI						1.31	1.05	
CR/BER								
Rofta								
Number of vessels	2	2	4	2	1	1	3	3
GT	495	873	1 149	529	374	374	655	655
kW	884	1 435	1 840	921	700	700	1 105	1 105

(a) Technical indicator

The three vessels in this segment achieved a very good value of 0.89, a result well above that of the previous year. Again, the indicator's relevance is questionable due to the low number of vessels in the segment.

(b) Biological indicators

Sustainable harvest indicator (SHI)
As no STECF calculation is available for this segment, a German calculation value has been used. Vessels in this segment mainly fished sandeel in the North Sea, sprat in the North Sea and the Baltic Sea and herring in the North Sea and the western and eastern Baltic Sea. Fishing mortality F_C for the three herring stocks was below F_{MSY}, but since fishing mortality F_C is somewhat higher and above F_{MSY} for the eastern Baltic sprat, the most important stock in both volume and value terms, the SHI is 1.05.

Stocks-at-Risk (SAR)
For this segment no SAR assessment was made by the STECF for 2015. An analysis carried out by Germany based on the relevant criteria showed no stock at risk in this segment.

(c) Economic indicators

For reasons of data protection, no economic data can be published with respect to this segment.

(d) Overall assessment

No clear assessment can be made for this segment. Because there are only three vessels the indicators are not pertinent. No stock at risk is fished.

Pelagic trawlers > 40 m (TM VL40XX)

TM40XX:	2009	2010	2011	2012	2013	2014	2015	2016
Tech	0.82	0.81	0.86	0.86	0.80	0.85	0.94	0.88
SAR	0	0	0	0	0	0	1	
SHI						1.09	0.98	
CR/BER								
Rofta								
Number of vessels	5	5	5	5	5	5	5	5
GT	27 565	26 801	26 801	26 922	26 922	26 922	26 922	26 922
kW	23 274	23 537	23 537	23 537	23 537	23 537	23 537	23 537

(a) Technical indicator

The five vessels in the pelagic fishing segment with a total length overall of 40 metres or more exploited their sea days at a similar high level in 2016, which is reflected in the indicator (0.88). The fact that large-scale deep-sea fisheries are put on a par with large-scale cutter fisheries has a negative impact on this indicator. Some deep-sea vessels recorded more than 300 sea days, whereas the large cutter only recorded 234 days.

(b) Biological indicators

Sustainable harvest indicator (SHI)

As no STECF calculation is available for this segment, a German calculation value has been used. Vessels in this segment fished a large number of different stocks in the Baltic Sea, the North Sea and the rest of the North Atlantic. For many of the herring stocks fished (Atlanto-Scandian, North Sea, eastern Baltic, Div. 6a N, 7h) and western horse mackerel, fishing mortality F_C was below F_{MSY}, resulting in an SHI below 1 (0.98).

Stocks-at-Risk (SAR)

For this segment one stock at risk was identified in 2015. The stock concerned is herring in division 6a N, for which the spawning stock biomass is below B_{lim}. ICES recommends that this stock should not be targeted and that no more than 10 % of overall landings should come from this stock.

(c) Economic indicators

For reasons of data protection, no economic data can be published with respect to this segment.

(d) Overall assessment

No clear assessment can be made for this segment. The technical indicator shows a good value and the SHI is close to 1. One stock at risk is fished.

General comments on the indicators

1. Technical indicator

The technical indicator was calculated for all segments except mussel dredging.
This indicator is not very meaningful in many segments where only one or a few vessels have a high exploitation rate in terms of sea days and all the other vessels in the segment are measured against that figure. Further explanations concerning the relative exploitation of sea days can be found above.

2. Biological indicators

The results for the biological indicators are summarised in **Annex 4**.

Two biological indicators have been calculated by the STECF in order to estimate the extent to which the various fleet segments are dependent on overfished stocks, and the degree to which their fishing activities affect stocks beyond biologically safe limits. These indicators are the ‘sustainable harvest indicator’ (SHI) and the ‘stocks-at-risk indicator’ (SAR). The indicators relate to catches and fishing mortality in 2015 and the state of stocks as at the beginning of 2016, since the results of the stock assessments for 2016 were not yet available when this fleet report was submitted.

The 2015 sustainable harvest indicator for fleet segments TBB VL40XX, TM VL1824, TM VL2440 and TM VL40XX was calculated by Germany, since no calculations are available from the STECF for these segments. The stocks at risk indicators for 2015 were also calculated by Germany as they were not available at the time of submitting the fleet report.

2.1 Sustainable harvest indicator (SHI)

The SHI values for the various segments are only included in the fleet report if the share of the landings value for a given segment that can be used to calculate the indicator exceeds 40 %.

The indicator values for the various segments range between 2.12 and 0.86. An SHI value > 1 indicates that the fleet segment concerned is, on average, economically dependent on stocks with a fishing mortality that is currently higher than the maximum sustainable yield (F_C > F_{MSY}) level.

It is a very welcome development that for 16 of the 17 segments assessed, the value is lower than in the previous year (2014). Another positive finding is that the medium-sized and large trawlers (TM VL2440, TM VL40XX and DTS VL40XX) achieved SHI values slightly below or above 1 (between 0.98 and 1.05). Segment TM VL40XX, which has a low SHI value of 0.98, was also the one with the highest value of landings and can therefore be held up as a good example.

Overall, those segments that make a substantial contribution to German landings (in 2015 and 2016, TM VL2440, TM VL40XX and DTS VL40XX accounted for **73 % and 74 %, respectively, of landings** in tonnes) achieved **good indicator values**. The values are more problematic for smaller vessels, but their landings in 2015 and 2016 were relatively small. The main problem identified can also be narrowed down geographically to the western Baltic Sea and concerns fleet segments fishing western Baltic cod.

Generally speaking, however, this indicator should be viewed critically as the calculation relies on biological data (exploitation level) and economic data (prices of individual fish species) collated with information on the composition of landings of individual segments, which makes the interpretation of the results more complicated in terms of the biological status of the resources used. The indicator is thus neither a purely economic, nor purely biological. However, since the indicator is presented as a biological indicator, it might seem as if some German fleet segments were putting the fished stocks at risk. Current fishing pressure (fishing mortality F_C) is considered in relation to the fishing pressure that is regarded as optimal (fishing mortality F_{MSY}), which appears to be a reasonable approach. This ratio is then offset against the value (€) of the landings of stocks and fleets, not against the weight of the landings. If account were taken of landed weight, together with fishing pressure, it would be possible to draw conclusions about the impact of individual fleet segments on various stocks. By contrast, the highly dynamic prices of certain fish species make it more difficult to interpret the biological impact.

The STECF has also levelled criticism against this indicator. In its assessment of the indicators used (STECF-15-02), it drew attention to various problems and shortcomings regarding the calculation and interpretation of the SHI. Below is a selection of key points quoted directly from the assessment:

- *The SHI, used in isolation, merely provides the average ratio of F/FMSY for those stocks caught by a specific fleet segment, weighted by the value of the landed catch from each of those stocks by that fleet segment. The resulting value simply indicates whether a particular fleet segment may be economically dependent on stocks that are estimated to be fished at a rate not consistent with fishing at FMSY.* ***To use this indicator to assess whether a particular fleet segment is in balance with its fishing opportunities could be wholly misleading.***
- *The SHI and its utility for assessing the balance between fishing capacity and fishing opportunities is not well understood;*
- *The SHI integrates information on the harvest rate of the stocks, the landings composition, and the prices of the various fish species, which makes it difficult to draw clear conclusions.*
- *The SHI may deliver a value of less than 1 for fleet segments which partly rely on individual stocks harvested at rates above F_{MSY}, hence masking instances of unsustainable fishing;*
- *The SHI may deliver a value of more than 1 for fleet segments which are not over-capacity with regards to their permitted harvest opportunities;*
- *The SHI may flag problems with a certain fleet segment despite the fact that the main problem lies with another fleet segment, which in turn may not necessarily be flagged;*
- *The limited number of fleet segments for which a representative indicator coverage can be achieved severely limits the usefulness of the SHI indicator.*

Germany supports the criticism of the SHI raised by the STECF and would welcome it if the Commission could arrange to have this indicator reviewed or adjusted as soon as possible.

2.2 Stock-at-Risk Indicator (SAR)

The SAR indicator is a measure of the extent to which the activities of individual fleet segments impact on stocks in a poor condition (i.e. with a low spawning stock biomass). A stock must meet the following conditions to be classed as a stock at risk:

a) assessed as being below the B_{lim} ; or
b) subject to an advice to close the fishery, to prohibit directed fisheries, to reduce the fishery to the lowest possible level, or similar advice from an international advisory body, even where such advice is given on a data - limited basis; or
c) subject to a fishing opportunities regulation which stipulates that the fish should be

returned to the sea unharmed or that landings are prohibited; or
d) a stock which is on the IUCN 'red list' or is listed by CITES.

AND for which either:

1 - the stocks make up to 10% or more of the catches by the fleet segment; or
2 - the fleet segment takes 10% or more of the total catches from that stock.

An analysis of recent years shows that between 2009 and 2011 the number of stocks at risk fished on a large scale by German fleet segments increased from five to 12. However, a positive trend has since become apparent, with the number of stocks at risk falling constantly to six in 2014. As no SAR indicator values were available from the STECF for 2015, the values have been calculated or established by Germany. For 2015 six stocks at risk were again identified, five of which are cod stocks in the western Baltic Sea.

Although the STECF (STECF-15-02) also criticises the SAR indicator on several points and provides suggestions for improvement, its use as a biological indicator seems more appropriate as it does not take account of economic data.

3. Economic indicators

The economic indicators were calculated by the Joint Research Centre on the basis of figures provided by Germany under the Data Collection Framework (DCF). The pelagic trawler segment is dominated by a single business owner, which means that the associated figures cannot be published for data protection reasons.

The CR/BER indicator (current revenue to break-even revenue ratio) was calculated taking account of the opportunity costs of capital. In Germany's case leaving out the opportunity cost would not make any notable difference due to the low interest rate. This indicator includes values for depreciation that are significantly higher than the figures actually applied by the businesses. This is due to the method laid down for determining the value of the vessels ('perpetual inventory method', PIM), which results in considerable overestimation. A rising trend can be observed in relation to most fleet segments.

As in previous years, there was a negative return on investment (RoFTA) for most fleet segments. Among other factors, this is attributable to the method laid down for determining the value of vessels. Consequently, the 'traffic light' for the 'return on investment' indicator is generally red. Both the value of the vessels and the costs actually incurred by the businesses are substantially lower than the mathematical depreciation levels and opportunity costs embedded in the indicators. Therefore, the indicator is not well suited to comprehensively assessing the balance between fleet capacity and fishing opportunities.

In the case of the demersal trawler segment (DTS40XX), the result of both indicators is negative. The vessels concerned mostly belong to vertically integrated undertakings where catches undergo further processing, which is where most of the value is created. According to the operators, the fishing activities of these vessels are profitable.

Unfortunately, the guidelines do not provide for using an indicator not linked to the value of the vessels when making the analysis.

Apart from the fact that the absolute indicator values are not particularly meaningful for the reasons outlined above, it should be noted that smaller vessels using mainly passive fishing gear (PG < 12 m) often fail to break even. However, it needs to be taken into account that many vessels in these segments are not primarily operated for commercial reasons but are used for amateur fishing or in the context of a side business. Here different cost structures are at play which are not related to the balance between fishing opportunities and capacity. Moreover, it should be borne in mind that these vessels account for a very small share of German catches and that the quantities fished are in any case limited by technical constraints. Also, a notable portion of their catches consists of fresh water species for which there is no quota and which are not subject to EU quota management. Any form of overfishing by these vessels can thus be technically ruled out.

4. Overall assessment of the balance

Overall, in Germany's view, fishing capacity and fishing opportunities are well balanced in the main fleet segments with the biggest share of catches. This is also reflected, in particular, by the fact that fishing opportunities allocated to German fisheries under EU law are generally not exceeded.

5. Action plan to redress structural imbalances in the German fishing fleet based on the indicator results

Problems were identified in relation to small-scale coastal fishing in particular. However, such fishing typically involves part-time fishermen whose catches account for a very small portion of total catches. The economic indicators are not particularly meaningful for this segment, as many of those involved do not engage in fishing with a view to maximising profit. Furthermore, this segment has been constantly shrinking in recent years. Irrespective of the indicators, it can be assumed that the small size and thus the low fishing capacity of these vessels make it highly unlikely that they could be the cause of any overfishing.

The indicator values for the larger vessels were more positive. The economic situation has fluctuated considerably in recent years, but this is nothing out of the ordinary. This cannot be taken as a sign of permanent overcapacity in an economic sense. Moreover, there are some issues with the methods used that lead to an overly negative assessment of the economic situation. An action plan has been in place for segments PG VL1012, DFN VL1218, DTS VL1012, DTS VL1218, DTS VL1824 and DTS VL2440 since the 2014 reporting period. Segment PG VL0010 has been included in the action plan for 2016 due to its dependence on cod stocks in the western Baltic Sea, the condition of which has deteriorated sharply (see section 1.A.ii). Thanks to positive indicators, segments DFN VL1218 and DTS VL2440 are not included in the current action plan. For segments PG VL0010, PG VL1012, DTS VL1012 and DTS VL1218, further measures are being launched, including a scrapping campaign in 2017 aimed at reducing fleet capacity.

An updated action plan is enclosed with this report.

Annex 1: Overview of stocks fished in 2016 by vessels in individual fleet segments. The figures in the table correspond to landings in tonnes. Stocks are only listed if catches were ≥ 100 tonnes (≥ 500 tonnes in the case of TM VL40XX). + = Catches in DRB Segments not shown for data protection reasons

Fished stock				**Segment**									
Code	**ICES/NAFO area**	**Stock**	**PG VL0010**	**PG VL1012**	**DFN VL1218**	**DFN VL2440**	**DRB VL1218**	**DRB VL2440**	**DRB VL 40XX**	**TBB VL1218**	**TBB VL1824**	**TBB VL2440**	**TBB VL40XX**
ANF	SA 4, 6, 7	Anglerfish				679							
ARU	SA 1, 2, 4, 6, 7, 8, 9, 10, 12, 14 + Div. 3a, 5b	Greater silver smelt											
ARY	6a (North)	Argentine											
CJM	FAO area 87	Chilean jack mackerel southeast Pacific											
COD	SA 1, Div. 2a, 2b	Northeast Arctic cod											
COD	Div.3b-d, SD 22-24	Western Baltic cod	629	494									
COD	Div. 3d, SD 25-32	Eastern Baltic Cod											
COD	Div. 3aN, 4a, 4b, 4c, 7d	North Sea cod				123							
COD	SA 14	East Greenland cod											
CSH	Div. 4b, 4c	North Sea shrimp								3 848	3 560	104	
DAB	Div. 3b-d, SD 22-24	Baltic Sea dab											
DAB	SA 4, Div. 7d	North Sea dab										123	
FLE	Div. 3b-c, SD 22-23	Belt Sea and Øresund flounder	142										
FLE	Div. 3c-d, SD 24-25	Southern Baltic flounder	147	118									
GHL	SA 14, Div. 5a	East Greenland/Iceland halibut											
GHL	NAFO Div. 1D	West Greenland halibut											
HAD	SA 4, 6, 7	North Sea haddock											
HAD	SA 1, Div. 2a, 2b	Northeast Arctic haddock											
HER	Div. 3a, 3b-d SD 22-24	Western Baltic herring	2 163	2 083	522								
HER	Div. 3d SD 25-32	Eastern Baltic herring											
HER	6A (North)	Herring in 6a (North)											
HER	SA 4, Div. 7d	North Sea herring (incl. Eastern Channel)											
HER	Div. 2a, 2b	Atlanto-Scandian herring											
HKE	Div. 3a, 8a,b,d, SA 4, 6, 7	Hake (northern stock)											
JAX	Div. 2a, 4a, 5b, 6a, 7a-c,e-k, 8a-e	Western horse mackerel											

JAX	Div. 3a, 4b,c, 7d	North Sea horse mackerel											
JAX	FAO area 34	Eastern central Atlantic horse mackerel											
MAC	Div. 2a, 3a, 4, 5b, 6, 7, 8abde, 11, 14	Northeast Atlantic mackerel											
MAS	FAO area 34	Japanese mackerel, eastern central Atlantic											
MAS	FAO area 87	Japanese mackerel, southeast Pacific											
MUS	Div. 4b	North Sea mussels						+	+			323	1 037
MUS	Div. 3a, 3b-d SD 22-24	Western Baltic mussels					+						
NEP	Div. 3a, SA 4	North Sea *Nephrops*									123		
PIL	FAO area 34	Eastern central Atlantic sardine											
PIL	SA 7, Div. 8a,b,d	Sardine (Biscay, Celtic Sea, English Channel)											
PLE	Div. 4a, 4b, 4c	North Sea plaice									250	1 577	364
PLE	SD 21-23	Plaice (Kattegat, Belt Sea and Øresund)											
POK	SA 1, Div. 2a, 2b	Northeast Arctic saithe											
POK	Div. 3a, 4a, 4b, 4c	North Sea saithe											
RED	SA 14	Greenland redfish *(S. mentella* + S. *marinus*)											
RED	SA 1, Div. 2a, 2b	Northeast Atlantic redfish *(S. mentella* + S. *marinus*)											
SAA	FAO area 34	Eastern central Atlantic round sardinella											
SOL	Div. 4b, 4c	North Sea sole										587	
SPR	SA 4	North Sea sprat											
SPR	SD 22-32	Baltic sprat											
SRA	Div. 3a, SA 4, Div. 7d	North Sea gurnard										116	
TUR	SA 4	North Sea turbot										124	
WHB	Combined stock (SA 1-10, 12, 14)	Blue whiting											
WHG	Div. 3a	Whiting (Skagerrak, Kattegat)											

Annex 1 (cont.)

Fished stock			**Segment**									
Code	**ICES/NAFO area**	**Stock**	**DTS VL1012**	**DTS VL1218**	**DTS VL1824**	**DTS VL2440**	**DTS VL40XX**	**TM VL1218**	**TM VL1824**	**TM VL2440**	**TM VL40XX**	**Number Segments**
ANF	SA 4, 6, 7	Anglerfish										1
ARU	SA 1, 2, 4, 6, 7, 8, 9, 10, 12, 14 + Div. 3a, 5b	Greater silver smelt									228	1
ARY	6a (North)	Argentine									590	1
CJM	FAO area 87	Chilean jack mackerel southeast Pacific									9 100	1
COD	SA 1, Div. 2a, 2b	Northeast Arctic cod					6 336					1
COD	Div. 3b-d, SD 22-24	Western Baltic cod		509	573	272						5
COD	Div. 3d, SD 25-32	Eastern Baltic cod			216	258			201	207		4
COD	Div. 3aN, 4a, 4b, 4c, 7d	North Sea cod				1 768	112					3
COD	SA 14	East Greenland cod					1 775					1
CSH	Div. 4b, 4c	North Sea shrimp										3
DAB	Div. 3b-d, SD 22-24	Baltic Sea dab	129	490	287							3
DAB	SA 4, Div. 7d	North Sea dab										1
FLE	Div. 3b-c SD 22-23	Belt Sea and Øresund flounder		185	157							3
FLE	Div. 3c-d SD 24-25	Southern Baltic flounder			390	102						4
GHL	SA 14, Div. 5a	East Greenland/Iceland halibut					4 420					1
GHL	NAFO Div. 1D	West Greenland halibut					1 889					1
HAD	SA 4, 6, 7	North Sea haddock				585						1
HAD	SA 1, Div. 2a, 2b	Northeast Arctic haddock					170					1
HER	Div. 3a, 3b-d SD 22-24	Western Baltic herring	442	1 031	253			1 649	3 273	3 010		9
HER	Div. 3d SD 25-32	Eastern Baltic herring								2 343	1 997	2
HER	6A (North)	Herring in 6a (North)									1 028	1
HER	SA 4, Div. 7d	North Sea herring (incl. Eastern Channel)								1 557	42 798	2
HER	Div. 2a, 2b	Atlanto-Scandian herring									2 582	1
HKE	Div. 3a, 8a,b,d, SA 4, 6, 7	Hake (northern stock)				630	146					2
JAX	Div. 2a, 4a, 5b, 6a,7a-c,e-k, 8a-e	Western horse mackerel									11 373	1
JAX	Div. 3a, 4b,c, 7d	North Sea horse mackerel									1 874	1
JAX	FAO area 34	Eastern central Atlantic horse mackerel									779	1
MAC	Div.2a, 3a, 4, 5b, 6, 7,	Northeast Atlantic									23 406	1

	8abde, 12, 14	mackerel										
MAS	FAO area 34	Japanese mackerel, eastern central Atlantic									1 622	1
MAS	FAO area 87	Japanese mackerel, southeast Pacific									662	1
MUS	Div. 4b	North Sea mussels										4
MUS	Div. 3a, 3b-d SD 22-24	Western Baltic mussels										1
NEP	Div. 3a, SA 4	North Sea *Nephrops*			455	256						3
PIL	FAO area 34	Eastern central Atlantic sardine									17 297	1
PIL	SA 12, Div. 8a,b,d	Sardine (Biscay, Celtic Sea, English Channel)									1 941	1
PLE	Div. 4a, 4b, 4c	North Sea plaice			1 435	747						5
PLE	SD 21-23	Plaice (Kattegat, Belt Sea and Øresund)		311	132							2
POK	SA 1, Div. 2a, 2b	Northeast Arctic saithe					952					1
POK	Div. 3a, 4a, 4b, 4c	North Sea saithe				2 716	3 541					2
RED	SA 14	Redfish (*S. mentella* + *S. marinus*)					1 718				715	1
RED	SA 1, Div. 2a, 2b	Northeast Atlantic redfish (*S. mentella* + S. *marinus*)					497					1
SAA	FAO area 34	Eastern central Atlantic round sardinella									802	1
SOL	Div. 4b, 4c	North Sea sole										1
SPR	SA 4	North Sea sprat								2 418	3 132	2
SPR	SD 22-32	Baltic sprat		241	449					2 554	7 591	4
SRA	Div. 3a, SA 4, Div. 7d	North Sea gurnard										1
TUR	SA 4	North Sea turbot										1
WHB	Combined stock (SA 1-10, 10, 14)	Blue whiting									20 017	1
WHG	Div. 3a	Whiting (Skagerrak, Kattegat)		130								1

Annex 2: Development of the stocks fished by vessels from the various fleet sections in 2016. Stocks are only listed if catches were ≥ 100 tonnes (≥ 500 tonnes in the case of TM VL40XX)

Segment	Fished stock	Stock status at start of 2016
PG VL0010	Western Baltic cod Belt Sea and Øresund flounder Southern Baltic flounder Western Baltic herring	SSB $< B_{lim}$, $F_{curr} > F_{MSY}$ No classification possible No classification possible Full reproductive capacity, $F_{curr} < F_{MSY}$
PG VL1012	Western Baltic cod Southern Baltic flounder Western Baltic herring	SSB $< B_{lim}$, $F_{curr} > F_{MSY}$ No classification possible Full reproductive capacity, $F_{curr} < F_{MSY}$
DFN VL1218	Western Baltic herring	Full reproductive capacity, $F_{curr} < F_{MSY}$
DFN VL2440	North Sea, Celtic Sea and Western Scotland anglerfish North Sea cod	No classification possible; Management status not clear SSB > MSY $B_{trigger}$, $F_{curr} > F_{MSY}$
DRB VL1218	Western Baltic mussels	No ICES stock assessment
DRB VL2440	North Sea mussels	No ICES stock assessment
DRB VL40XX	North Sea mussels	No ICES stock assessment
TBB VL1218	North Sea *Crangon*	No ICES stock assessment
TBB VL1824	North Sea *Crangon* North Sea plaice North Sea Norway lobster	No ICES stock assessment Full reproductive capacity, $F_{curr} < F_{MSY}$ Many subpopulations with varying stock status
TBB VL2440	North Sea *Crangon* North Sea dab North Sea plaice North Sea sole North Sea turbot North Sea mussels North Sea gurnard	No ICES stock assessment No classification possible; management status unclear Full reproductive capacity, $F_{curr} < F_{MSY}$ Full reproductive capacity, $F_{curr} = F_{MSY}$ No classification possible; management status unclear No ICES stock assessment No classification possible; management status unclear
TBB VL40XX	North Sea plaice North Sea mussels	Full reproductive capacity, $F_{curr} < F_{MSY}$ No ICES stock assessment
DTS VL1012	Western Baltic herring Baltic Sea dab	Full reproductive capacity, $F_{curr} < F_{MSY}$ No classification possible; management status unclear
DTS VL1218	Baltic Sea dab Baltic sprat Belt Sea and Øresund flounder Western Baltic cod Western Baltic herring Kattegat, Belt Sea and Øresund plaice Skagerrak and Kattegat whiting	No classification possible; management status unclear Full reproductive capacity, $F_{curr} > F_{MSY}$ No classification possible SSB $< B_{lim}$, $F_{curr} > F_{MSY}$ Full reproductive capacity, $F_{curr} < F_{MSY}$ Full reproductive capacity, $F_{curr} < F_{MSY}$ No classification possible
DTS VL1824	Baltic Sea dab Baltic sprat Belt Sea and Øresund flounder Eastern Baltic cod North Sea Norway lobster North Sea plaice Southern Baltic flounder Western Baltic cod Western Baltic herring Kattegat, Belt Sea and Øresund plaice	No classification possible; management status unclear Full reproductive capacity, $F_{curr} > F_{MSY}$ No classification possible No classification possible Many subpopulations with varying stock status Full reproductive capacity, $F_{curr} < F_{MSY}$ No classification possible SSB $< B_{lim}$, $F_{curr} > F_{MSY}$ Full reproductive capacity, $F_{curr} < F_{MSY}$ Full reproductive capacity, $F_{curr} < F_{MSY}$
DTS VL2440	Eastern Baltic cod Western Baltic cod Southern Baltic flounder North Sea cod North Sea haddock North Sea saithe	No classification possible SSB $< B_{lim}$, $F_{curr} > F_{MSY}$ No classification possible SSB > MSY $B_{trigger}$, $F_{curr} > F_{MSY}$ SSB < MSY $B_{trigger}$, $F_{curr} > F_{MSY}$ Full reproductive capacity, $F_{curr} < F_{MSY}$

	North Sea plaice	Full reproductive capacity, $F_{curr} < F_{MSY}$
	North Sea hake (northern stock)	Full reproductive capacity, $F_{curr} < F_{MSY}$
	North Sea Norway lobster	Many subpopulations with varying stock status
DTS VL40XX	North Sea cod	SSB > MSY $B_{trigger}$, $F_{curr} > F_{MSY}$
	Northeast Arctic cod	Full reproductive capacity, $F_{curr} < F_{MSY}$
	Greenland cod	No classification possible
	North Sea saithe	Full reproductive capacity, $F_{curr} < F_{MSY}$
	Northeast Arctic saithe	Full reproductive capacity, F_{MSY} not defined
	Northeast Arctic haddock	Full reproductive capacity, $F_{curr} < F_{MSY}$
	East Greenland/Iceland halibut	Full reproductive capacity, $F_{curr} > F_{MSY}$
	East Greenland/Iceland halibut*	No classification possible, F between $F_{0.1}$ and F_{max}
	Redfish *S. mentella* and *S. marinus* (Div. XIV)	No classification possible. Stocks partly in good, partly in bad condition
TM VL1218	Western Baltic herring	Full reproductive capacity, $F_{curr} < F_{MSY}$
TM VL1824	Eastern Baltic cod	No classification possible
	Western Baltic herring	Full reproductive capacity, $F_{curr} < F_{MSY}$
TM VL2440	Eastern Baltic cod	No classification possible
	Eastern Baltic herring	Full reproductive capacity, $F_{curr} < F_{MSY}$
	North Sea herring (incl. Eastern Channel)	Full reproductive capacity, $F_{curr} < F_{MSY}$
	Western Baltic herring	Full reproductive capacity, $F_{curr} < F_{MSY}$
	Baltic sprat	Full reproductive capacity, $F_{curr} > F_{MSY}$
	North Sea sprat	Full reproductive capacity, $F_{curr} > F_{CAP}$
TM VL40XX	Atlanto-Scandian herring	SSB = MSY $B_{trigger}$, $F_{curr} < F_{MSY}$
	North Sea herring (incl. Eastern Channel)	Full reproductive capacity, $F_{curr} < F_{MSY}$
	Eastern Baltic herring	Full reproductive capacity, $F_{curr} < F_{MSY}$
	Herring 6a North	$B < B_{lim}$, $F_{curr} < F_{MSY}$
	Baltic sprat	Full reproductive capacity, $F_{curr} > F_{MSY}$
	North Sea sprat	Full reproductive capacity, $F_{curr} > F_{CAP}$
	Northeast Atlantic mackerel	Full reproductive capacity, $F_{curr} > F_{MSY}$
	Blue whiting	Full reproductive capacity, $F_{curr} > F_{MSY}$
	Northeast Atlantic greater silver smelt	No classification possible
	Argentine 6a North	No classification possible
	North Sea horse mackerel	No classification possible
	Western horse mackerel	SSB < MSY $B_{trigger}$, $F_{curr} < F_{MSY}$
	Eastern central Atlantic horse mackerel	No classification possible
	Redfish *S. mentella*	SSB < MSY $B_{trigger,}$ $F_{curr} > F_{MSY}$
	Japanese mackerel, eastern central Atlantic	No classification possible
	Japanese mackerel, southeast Pacific	
	Eastern central Atlantic sardine	No classification possible
	Biscay, Celtic Sea, English Channel sardine	No classification possible
	Eastern central Atlantic round sardinella	No classification possible
	Chilean jack mackerel, southeast Pacific	No classification possible
		No classification possible

Annex 3: Changes in capacity in 2016

Status of the German fishing fleet as at 31.12.2015

Description	Number	GT	kW
Small-scale coastal fishing vessels < 12 m	**1 122**	**2 706**	**27 205**
VL0010 PG	1 051	1 943	21 070
VL1012 PG	71	763	6 135
Passive > 12 m	**13**	**1 289**	**3 445**
VL1218 DFN	5	121	755
VL1824 DFN	1	68	132
VL2440 DFN	4	729	1 475
VL1218 FPO	1	24	220
VL2440 FPO	2	347	863
Trawlers up to 40 m	**73**	**6 806**	**17 539**
VL0010 DTS	1	4	57
VL1012 DTS	10	156	1 433
VL1218 DTS	28	871	4 869
VL1824 DTS	16	1 724	3 485
VL2440 DTS	11	3 067	5 710
VL1218 TM	2	122	439
VL1824 TM	2	207	441
VL2440 TM	3	655	1 105
Beam trawlers	**213**	**10 749**	**47 153**
VL0010 TBB	13	40	515
VL1012 TBB	5	63	515
VL1218 TBB	115	3 572	22 285
VL1824 TBB	68	4 262	14 896
VL2440 TBB	10	2 021	6 721
VL40XX TBB	2	791	2221
Pelagic trawlers > 40 m	**5**	**26 922**	**23 537**
VL40XX TM	5	26 922	23 537
Demersal trawlers > 40 m	**7**	**12 898**	**15 724**
VL40XX DTS	7	12 898	15 724
Mussel dredgers	**7**	**1 646**	**4 288**
VL1218 DRB	1	53	252
VL2440 DRB	4	768	2 097
VL40XX DRB	2	825	1 939
Total	1 440	63 016	138 891

Status of the German fishing fleet as at 31.12.2016

Description	Number	GT	kW
Small-scale coastal fishing vessels < 12 m	**1 099**	**2 678**	**27 166**
VL0010 PG	1 030	1 934	21 092
VL1012 PG	69	744	6 074
Passive > 12 m	**14**	**1 319**	**3 569**
VL1218 DFN	7	175	1 099
VL1824 DFN	1	68	132
VL2440 DFN	6	1 076	2 338
VL1218 FPO	0	0	0
VL2440 FPO	0	0	0
Trawlers up to 40 m	**67**	**6 378**	**16 512**
VL0010 DTS	0	0	0
VL1012 DTS	10	156	1 382
VL1218 DTS	24	754	4 245
VL1824 DTS	13	1 444	2 824
VL2440 DTS	11	2 893	5 635
VL1218 TM	2	122	439
VL1824 TM	4	354	882
VL2440 TM	3	655	1 105
Beam trawlers	**213**	**10 708**	**46 261**
VL0010 TBB	12	37	482
VL1012 TBB	5	63	515
VL1218 TBB	115	3 596	22 285
VL1824 TBB	70	4 393	15 383
VL2440 TBB	9	1 828	5 743
VL40XX TBB	2	791	1853
Pelagic trawlers > 40 m	**5**	**26 922**	**23 537**
VL40XX TM	5	26 922	23 537
Demersal trawlers > 40 m	**7**	**12 898**	**15 724**
VL40XX DTS	7	12 898	15 724
Mussel dredgers	**8**	**1 839**	**4 848**
VL1218 DRB	1	53	252
VL2440 DRB	5	961	2 657
VL40XX DRB	2	825	1 939
Total	1 413	62 742	137 617

Absolute changes in 2016 on previous year:

Description	Number	GT	kW
Small-scale coastal fishing vessels < 12 m	**-23**	**-28**	**-39**
VL0010 PG	-21	-9	22
VL1012 PG	-2	-19	-61
Passive > 12 m	**1**	**30**	**124**
VL1218 DFN	2	54	344
VL1824 DFN	0	0	0
VL2440 DFN	2	347	863
VL1218 FPO	-1	-24	-220
VL2440 FPO	-2	-347	-863
Trawlers up to 40 m	**-6**	**-428**	**-1 027**
VL0010 DTS	-1	-4	-57
VL1012 DTS	0	0	-51
VL1218 DTS	-4	-117	-624
VL1824 DTS	-3	-280	-661
VL2440 DTS	0	-174	-75
VL1218 TM	0	0	0
VL1824 TM	2	147	441
VL2440 TM	0	0	0
Beam trawlers	**0**	**-41**	**-892**
VL0010 TBB	-1	-3	-33
VL1012 TBB	0	0	0
VL1218 TBB	0	24	0
VL1824 TBB	2	131	487
VL2440 TBB	-1	-193	-978
VL40XX TBB	0	0	-368
Pelagic trawlers > 40 m	**0**	**0**	**0**
VL40XX TM	0	0	0
Demersal trawlers > 40 m	**0**	**0**	**0**
VL40XX DTS	0	0	0
Mussel dredgers	**1**	**193**	**560**
VL1218 DRB	0	0	0
VL2440 DRB	1	193	560
VL40XX DRB	0	0	0
Total	-27	-274	-1 274

Annex 4: Sustainable harvest indicator (SHI) for 2015 The rows highlighted in grey were not included in SHI because less than 40 % of the fleet's landing value was used when calculating the indicator. Values marked with an 'a' are based on a calculation made by Germany, since no STECF assessment was available.

Fleet segment	Value of landings by a fleet segment with available F_c/F_{MSY}	Stocks used to calculate SHI	Number of stocks used to calculate SHI	Number of overfished stocks in indicator (marked with *)	SHI	Percentage of a fleet's landing value included in the indicator	Value of total landings by fleet
DTS VL1218	1 877 868	*cod-2224, *had-346a, her-3a22, *mac-nea, nep-3-4, ple-2123, ple-nsea, sai-3a46, sol-kask, *spr-2232	10	4	**2.40**	71	2 656 999
DTS VL1012	426 370	*cod-2224, her-3a22, *mac-nea, ple-2123, sol-kask, *spr-2232	6	3	**2.03**	70	613 134
PG VL1012	1 475 977	*cod-2224, her-3a22, *mac-nea, ple-2123, sol-kask, *spr-2232	6	3	**1.97**	78	1 885 255
DTS VL1824	5 013 265	*cod-2224, *cod-347d, dgs-nea, *had-346a, her-3a22, hke-nrtn, *mac-nea, *nep-6, *nep-8, ple-2123, ple-nsea, sai-3a46, sol-kask, sol-nsea, *spr-2232, *whg-47d	16	8	**1.41**	55	9 143 527
DFN VL1218	752 633	*bss-47, *cod-2224, *cod-347d, *had-346a, her-3a22, hke-nrtn, ple-2123, ple-nsea, sai-3a46, sol-kask, sol-nsea	11	4	**1.06**	93	812 324
TM VL2440	2 430 953	*cod-2224, her-3a22, her2529-gor, her47d3, sai-3a46, *spr-nsea, *spr-2232	7	3	**1.05** [a]	70	3 479 851
DTS VL2440	15 325 308	*cod-2224, *cod-347d, dgs-nea, *had-346a, her-47d3, hke-nrtn, *mac-nea, meg-4a6a, *nep-6, nep-7, *nep-8, nep-9, ple-2123, ple-nsea, sai-3a46, sol-nsea, *whg-47d	17	7	**1.01**	84	18 252 614

Fleet segment	**Value of landings by a fleet segment with available F_c/F_{MSY}**	**Stocks used to calculate SHI**	**Number of stocks used to calculate SHI**	**Number of overfished stocks in indicator (marked with *)**	**SHI**	**Percentage of a fleet's landing value included in the indicator**	**Value of total landings by fleet**
DTS VL40XX	29 141 624	*cod-347d, cod-arct, dgs-nea, *ghl-grn, *had-346a, had-arct, her-noss, hke-nrtn, *mac-nea, meg-4a6a, ple-2123, ple-nsea, sai-3a46, *usk-icel, *whg-47d	15	6	**1.01**	69	42 157 685
TBB VL2440	7628658	*bss-47, *cod-347d, *had-346a, hke-nrtn, *mac-nea, *nep-6, *nep-8, ple-nsea, sai-3a46, sol-nsea, *whg-47d	11	7	**0.98**	65	11 826 737
TM VL40XX	60 021 941	her-47d3, her-noss, her-2532-gor, her-irls, her-67bc, hom-west, jax-eastAtl, *mac-nea, pil-eastAtl, *smn-dp, *spr-2232, *spr-nsea, *whb-comb	13	5	**0.98** [a]	83	72 234 867
TBB VL40XX	13 69 520	*cod-347d, *had-34, hke-nrtn, ple-nsea, *mac-nea, sai-3a46, sol-nsea, *whg-47d	8	4	**0.97** [a]	40	3 415 437
TM VL1824	530 216	*cod-2224, her-3a22	2	1	**0.86** [a]	78	683 422
FPO VL1218	51 016	her-3a22	1	0	**0.80**	100	51 016
PG VL0010	1 997 862	*cod-2224, her-3a22, her-47d3, *mac-nea, ple-2123, sol-kask, *spr-2232	7	3	**2.12**	38	5 266 586
TBB VL1218	24 893	*cod-2224, ple-2123, ple-nsea, sol-nsea	4	1	**1.81**	0.01	21 308 380
DFN VL2440	611 107	*bss-47, *cod-347d, *had-346a, hke-nrtn, *mac-nea, *nep-6, *nep-8, ple-2123, ple-nsea, sai-3a46, sol-kask, sol-nsea	12	6	**1.07**	27	2 272 817
TBB VL1824	1 186 826	*cod-347d, *had-346a, hke-nrtn, *mac-nea, *nep-6, *nep-8, ple-nsea, sol-nsea, *whg-47d	9	6	**1.01**	6.7	17 822 793