



Annual Report on fishing fleet capacity 2017 - Denmark

The format of the Danish capacity report concerning 2017 follows the headlines mentioned in article 14 of Commission Regulation (EEC) No. 1013/2010 (no longer in force).

Fleet data used in the report are from 2017, whereas data on economic performance and technical indicators is from 2016.

Biological indicators provided by the Commission in 2017 include the time series of Danish catches from 2009-2015.

The report has been prepared by the national authority the Danish Fisheries Agency with inputs from the Department of Food and Resource Economics, University of Copenhagen and National Institute of Aquatic Resources, Technical University of Denmark.

Section A

Description of fleets

The statistics of Table A.1 include all Danish vessels during the year and not only by the 31st of December as fleet statistics usually do. There was 2,314 vessels registered in the Danish vessel register during 2017, cf. Table A.1.

Out of these 2,314 vessels, 111 of these were not registered at the end of 2017, but had been that during the year. In total, 2,203 vessels were registered the 31st December 2017. Of these, 783 vessels had not been active during the year, i.e. did not have any registered landings value. A total of 527 vessels are considered as commercial vessels, i.e. their total landings value was above the threshold level of € 36,000 in 2017, while the remaining 893 vessels were non-commercial vessels with landing values below € 36,000.

Table A.1. Number of registered Danish fishing vessels in 2017

Length	Gear	Commercial ¹⁾	Non-commercial ²⁾	Inactive ³⁾	Not registered 31 st December ⁴⁾	Total
VL0010m	DTS	3	5	3	3	14
	PGP	90	753	703	68	1,614
	PMP	28	96	55	9	188
	Total	121	854	761	80	1,816
VL1012m	DRB	5	1	2	1	9
	DTS	12	3		1	16
	PGP	34	13	3	5	55
	PMP	21	9	1	2	33
	Total	72	26	6	9	113
VL1218m	DRB	32	2	1		35
	DTS	103	5	4	8	120
	PGP	23	2	2		27

	PMP	29	4	4	2	39
	TBB	10				10
	TM ⁵⁾	6		2		8
	Total	203	13	13	10	239
VL1824m	DTS	37		2	3	42
	PMP	11				11
	TBB	16			1	17
	Total	64		2	4	70
VL2440m	DTS ⁶⁾	36			2	38
	PMP	3			1	4
	Total	39			3	42
VL40XXm	DTS	8		1	4	13
	TM ⁷⁾	20			1	21
	Total	28		1	5	34
Total		527	893	783	111	2,314

See Annex 1 for explanation of Gear Codes

Source: The Danish Fisheries Agency Vessel Register and Sales Notes Register 11th April 2018.

Notes: ¹⁾ Includes vessels with a yearly catch value above € 36,000.

²⁾ Includes vessels with a yearly catch value below € 36,000 but above € 0.

³⁾ Includes vessels not having any catch value within the year.

⁴⁾ Includes vessels not being active by the end of the year.

⁵⁾ For discretionary purposes, VL1824m TM has been included in VL1218m TM.

⁶⁾ For discretionary purposes, VL24XXm TBB has been included in VL2440m DTS.

⁷⁾ For discretionary purposes, VL40XXm PS has been included in VL40XXm TM.

The distribution of tonnage and engine power is shown in Appendix 2. For both capacity measures, the commercial vessels make up the majority of these with 85% of total GT and 68% of total kW. These shares have been increasing over the years.

Section A

Link with fisheries

The linkages between the different fleet segments and the kind of fisheries they conduct are shown in Table A.2 based on landing value and Table A.3 based on landing whole weight. A detailed overview for the commercial and non-commercial vessels can be found in Annex 3.

The fleet segments below 40 metres are primarily dependent on demersal species, with the exception of VL1218m TM that is mostly dependent on reduction species and pelagic consumption species (mackerel and herring). The fleet segments above 40 metres are solely dependent on mackerel, herring and reduction species. The VL40XXm is also dependent on an entry-restricted fishery, but this is attributable to one vessel catching shrimps in the waters around Greenland. The DRBs and TBBs are in entry-restricted fisheries for mussels and shrimps.

Table A.2. Distribution of landing value in 2017 on overall fisheries (%)

Length	Gear	Round fish	Flatfish	Lobster and shrimp	Mackerel and herring	Other species	Reduction species ¹⁾	Entry-restricted ²⁾	Total landings value ⁵⁾	
									€ 1,000	%
VL0010m	DTS	36	47	16	0	1	0	0	809	0.2

	PGP	24	26	10	2	36	0	1	12,273	2.6
	PMP	32	47	12	1	7	0	1	3,625	0.8
VL1012m	DRB	2	6	0	7	1	3	81	1,301	0.3
	DTS	39	31	22	0	1	7	0	1,975	0.4
	PGP	45	41	1	1	10	2	1	4,714	1.0
	PMP	30	50	13	0	4	4	0	2,999	0.6
VL1218m	DRB	0	0	0	1	1	0	98	13,006	2.8
	DTS	21	24	44	0	1	9	0	36,327	7.8
	PGP	38	58	1	0	3	0	0	8,848	1.9
	PMP	30	35	31	0	2	2	0	8,778	1.9
	TBB	0	0	0	0	0	0	100	5,040	1.1
	TM ³⁾	1	1	3	33	0	62	0	5,902	1.3
VL1824m	DTS	21	34	27	3	1	14	0	38,399	8.3
	PMP	20	48	18	0	3	12	0	14,172	3.1
	TBB	0	7	0	0	0	0	92	10,159	2.2
VL2440m	DTS ⁴⁾	52	26	14	0	1	8	0	82,006	17.7
	PMP	78	21	0	0	1	0	0	11,472	2.5
VL40XXm	DTS	0	0	0	12	0	45	43	38,863	8.4
	TM	0	0	0	61	0	39	0	163,898	35.3

See Annex 1 for explanation of Gear Codes

Source: The Danish Fisheries Agency Vessel Register and Sales Notes Register 11th April 2018.

Notes: ¹⁾ Species such as sand eel, blue whiting, sprat, horse mackerel and Norway pout.

²⁾ Species that can only be caught with an authorization, i.e. mussels, oysters, brown shrimps and shrimps in the waters around Greenland.

³⁾ For discretionary purposes, VL1824m TM has been included in VL1218m TM.

⁴⁾ For discretionary purposes, VL24XXm TBB has been included in VL2440m DTS.

⁵⁾ For discretionary purposes, VL40XXm PS has been included in VL40XXm TM.

⁶⁾ Based on the average Euro exchange rate for 2016 being 7.4386DKK / €.

Table A.3. Distribution of landing live weight in 2017 on overall fisheries (%)

Length	Gear	Round fish	Flatfish	Lobster and shrimp	Mackerel and herring	Other species	Reduction on species ¹⁾	Entry-restricted ²⁾	Total landings live weight	
									tonnes	%
VL0010m	DTS	34	60	6	0	1	0	0	291	0.0
	PGP	30	35	2	8	23	1	1	3,610	0.4
	PMP	31	61	4	1	2	0	0	1,333	0.1
VL1012m	DRB	0	3	0	8	0	6	82	2,730	0.3
	DTS	32	21	3	0	0	44	0	1,570	0.2
	PGP	36	34	0	4	4	22	0	2,200	0.2
	PMP	27	37	2	0	2	32	0	2,147	0.2

VL1218 m	DRB	0	0	0	0	3	0	96	49,295	5.3
	DTS	14	13	6	0	1	65	0	31,909	3.4
	PGP	36	61	0	0	3	0	0	2,859	0.3
	PMP	39	30	8	1	2	20	0	4,590	0.5
	TBB	0	0	0	0	0	0	100	626	0.1
	TM ³⁾	0	0	0	18	0	82	0	25,385	2.7
VL1824 m	DTS	7	11	3	5	1	72	0	45,480	4.9
	PMP	6	16	3	0	2	73	0	13,978	1.5
	TBB	1	22	0	0	0	0	77	1,456	0.2
VL2440 m	DTS ⁴⁾	26	13	3	0	0	58	0	68,471	7.4
	PMP	77	23	0	0	1	0	0	4,337	0.5
VL40X Xm	DTS	0	0	0	6	0	90	3	121,809	13.2
	TM	0	0	0	31	0	69	0	541,590	58.5

See Annex 1 for explanation of Gear Codes

Source: The Danish Fisheries Agency Vessel Register and Sales Notes Register 11th April 2018.

Notes: ¹⁾ Species such as sand eel, blue whiting, sprat, horse mackerel and Norway pout.

²⁾ Species that can only be caught with a authorization, i.e. mussels, oysters, brown shrimps and shrimps in the waters around Greenland.

³⁾ For discretionary purposes, VL1824m TM has been included in VL1218m TM.

⁴⁾ For discretionary purposes, VL24XXm TBB has been included in VL2440m DTS.

⁵⁾ For discretionary purposes, VL40XXm PS has been included in VL40XXm TM.

Section A

Developments in fleets

The structure of the Danish fishing fleet has changed considerably since 2003, where the first ITQ regulation was implemented in the herring fishery. Since then, ITQs has gradually been introduced in other pelagic fisheries, and from 2007 demersal fisheries were also managed with vessel quota shares (VQS). These management changes are the major reason for the following reductions in the fishing capacity of the Danish fishing fleet, as displayed in Table A.4.

The number of registered vessels has been reduced with 24% from 2008 to 2017. The capacity of the Danish fishing fleet decreased 9% in GT and 23% in kW in the same period.

Table A.4. Development in the capacity of registered Danish fishing vessels^{1) 2)}

Length	Gear	2008			2011			2014			2017		
		No.	GT	kW	No.	No.	No.	No.	GT	kW	No.	GT	kW
VL0010m	DTS	17	95	1,185	16	91	1,091	20	125	1,667	14	93	1,178
	PGP	2,108	4,512	50,124	2,018	4,259	49,744	1,874	3,939	47,272	1,614	3,486	43,827
	PMP	143	646	7,144	198	831	9,219	199	796	9,301	188	755	9,125
	Total	2,268	5,253	58,453	2,232	5,181	60,054	2,093	4,860	58,240	1,816	4,334	54,130
VL1012m	DRB	31	422	3,337	31	433	3,375	22	339	2,325	9	118	812
	DTS	14	173	1,747	10	143	1,231	12	175	1,572	16	224	2,312

	PGP	78	827	6,872	66	716	6,167	63	706	6,152	55	623	5,347	
	PMP	31	361	3,126	33	395	3,346	41	499	4,471	33	409	3,448	
	Total	154	1,783	15,082	140	1,686	14,119	138	1,718	14,520	113	1,373	11,919	
VL1218m	DRB	35	1,095	5,228	34	1,257	5,326	29	981	4,226	35	1,349	5,057	
	DTS	209	6,756	37,407	166	5,702	30,228	135	4,615	24,444	120	4,475	22,320	
	PGP	80	2,378	11,778	57	1,762	8,579	41	1,375	6,426	27	872	4,143	
	PMP	58	1,332	8,801	57	1,382	8,923	46	1,360	7,688	39	1,175	6,620	
	TBB	18	752	3,231	11	548	2,126	11	548	2,126	10	489	1,998	
	TM ³⁾								15	764	3,023	8	478	1,507
	Total	400	12,313	66,445	325	10,650	55,182	277	9,643	47,933	239	8,838	41,645	
VL1824m	DTS	90	7,634	27,585	68	6,721	21,110	60	6,100	17,940	42	4,522	12,281	
	PMP	15	1,395	3,895	15	1,517	4,336	11	1,276	3,693	11	1,399	3,964	
	TBB	13	827	2,393	17	1,137	3,087	16	1,094	2,877	17	1,160	3,087	
	Total	118	9,856	33,873	100	9,374	28,533	87	8,470	24,510	70	7,081	19,332	
VL2440m	DTS ⁴⁾	74	18,578	48,035	46	12,760	28,547	36	10,398	22,984	38	11,414	24,540	
	PMP	8	1,992	4,124	5	1,140	2,143	6	1,532	3,028	4	1,354	2,537	
	Total	82	20,569	52,159	51	13,900	30,690	42	11,929	26,012	42	12,768	27,077	
VL40XXm	DTS	32	22,615	45,932	25	21,189	41,564	15	11,140	20,945	13	12,100	25,278	
	PS	7	9,911	22,625	4	6,526	16,738	4	5,697	12,343				
	TM ⁵⁾							14	21,368	39,032	21	28,041	47,800	
	Total	39	32,526	68,557	29	27,715	58,302	33	38,205	72,320	34	40,141	73,078	
Total		3,061	82,299	294,569	2,877	68,506	246,880	2,670	74,825	243,535	2,314	74,535	227,181	

See Annex 1 for explanation of Gear Codes

Source: The Danish Fisheries Agency Vessel Register and Sales Notes Register 11th April 2018.

Notes: ¹⁾ Covers vessels in the register within a year, but does not include virtual capacity.

²⁾ From 2008-2011, gear type TM was included in gear type DTS.

³⁾ For discretionary purposes, VL1824m TM has been included in VL1218m TM.

⁴⁾ For discretionary purposes, VL24XXm TBB has been included in VL2440m DTS.

⁵⁾ For discretionary purposes, VL40XXm PS has been included in VL2440m TM in 2016.

Section B

Statement of effort reduction schemes - impact of the cod recovery plans for the North Sea and the Baltic in 2017

An overview of the data with respect to this section is presented in Annex 5. Data includes figures for activity according to the effort regimes in the North Sea and in the Baltic Sea in accordance with previous years of annual reports.

When describing the effects on the Danish fishing fleet for vessels involved in fishing with gear covered by the effort regime, it must be borne in mind that there were great variations in effort within each segment which to a large extent is caused by a clash between quota and effort management. The reason for the significant variation was that the Danish regulation with VQS (Vessel Quota Shares) from 2007 allowed vessels to pool their quotas on fewer vessels.

The description is based on the effort register kept by the Danish Fisheries Agency. While reading this presentation, it must be borne in mind that the Danish fleet in general conduct mixed fishery, both with regard to species and geography.

Fleet in the kilowatt days regime for the North Sea, Skagerrak, Kattegat, Irish Sea and West of Scotland

In 2017, 325 vessels took part in fisheries using gears covered by the regulation, as opposed to 780 vessels in 2003. That corresponds to a reduction of 58%. In 2017, 34,505 days at sea were used as opposed to 86,962 days at sea in 2003, which corresponds to a reduction of 60%. The reduction, in terms of total kilowatt days used was 54%.

In the fishery with **trawl ≥ 100 mm. (TR1)**, 7,121,732 kilowatt days were used in 2003 compared to 5,280,861 kilowatt days in 2017 – a 26% reduction. The number of vessels fishing in this category fell by 60% to 142 vessels. There was an increase in kilowatt days per vessel by 87% compared to 2003.

In the **trawl** fishery between **70 mm and 99 mm (TR2)**, 3,657,293 kilowatt days were used in 2017 as opposed to 10,808,334 kilowatt days in 2003 – a 66% reduction. The number of vessels were reduced by 60% to 172 vessels. The kilowatt days per vessel were 16% down compared with 2003.

In the **trawl** fishery between **16 mm and 31 mm (TR3)**, 1,571,263 kilowatt days were used in 2017 compared to 3,867,765 kilowatt days in 2003 – a reduction of 59%. The number of vessels in this fishery fell by 84% to 27 vessels. The kilowatt days per vessel were increased by 162%.

In the fishery with **beam trawl ≥ 120 mm (BT1)**, 339,901 kilowatt days were used in 2017 as opposed to 1,342,965 kilowatt days in 2003 – a 75% reduction. The number of vessels fishing in this segment fell 83% to 2 vessels. The increase in kilowatt days per vessel was 52%.

In the fishery with **beam trawl** between **80 mm and 119 mm (BT2)**, 21,871 kilowatt days were used in 2017 compared to 98,897 kilowatt days in 2003 – a 78% reduction. The number of vessels fishing in this segment fell 82% to 2 vessels. The increase in kilowatt days per vessel was 22%.

In the fishery with **nets (GN1)**, 730,016 kilowatt days were used in 2017 as opposed to 2,456,364 kilowatt days in 2003, which was a 70% reduction. The number of vessels fell by 71 % to 67 vessels. There was an increase in kilowatt days per vessel by 4%.

In the fishery with **trammel nets (GT1)**, 453,975 kilowatt days were used in 2017 as opposed to 170,865 kilowatt days in 2003, which was a 166% increase. The number of vessels was reduced by 8%. There was an increase in kilowatt days per vessel by 189%.

In the segment **liners (LL1)**, there was no activity in 2017.

In summary, a substantial decrease of effort overall and for all types of gear, except trammel nets, has taken place since the effort regime was adopted. The situation has "stabilized" in recent years with a tendency of fewer vessels conducting a more efficient fishery.

Fleet in the effort regime for the Baltic Sea

In 2017, 189 vessels took part in fisheries using gears that may target cod, as opposed to 479 vessels in 2003. That corresponds to a reduction of 61%. In 2017, 13,719 days at sea were used

as opposed to 35,571 days at sea in 2003, which corresponds to a reduction of 61%. The reduction in terms of total kilowatt days used was 68%.

From 2003 to 2017, the number of kilowatt days per vessel fell by 20%.

In the **Western Baltic Sea**, 1,162,413 kilowatt days were used in 2017 compared to 4,364,018 kilowatt days in 2003 – a reduction of 73%. The number of vessels in this fishery fell by 62% to 177 vessels. The kilowatt days per vessel fell by 30%.

In the **Eastern Baltic Sea**, 670,618 kilowatt days were used in 2017 compared to 1,438,598 kilowatt days in 2003 – a reduction of 53%. The number of vessels in this fishery fell by 77% to 44 vessels. Kilowatt days per vessel increased by 99%.

In summary, a substantial decrease of effort over all in the period. The situation for the recent years indicates a tendency of further reduction in the fishing effort for the entire Baltic Sea.

Section B

Impact on fishing capacity of effort reduction schemes

An overview of the data with respect to this section is presented in Annex 6. Data includes figures for activity concerning the effort regimes for the North Sea and the Baltic Sea.

Fleet in cod recovery plan for the North Sea, Skagerrak, Kattegat, Irish Sea and West of Scotland

Vessels that took part in fisheries using gears covered by the regulation represented 41,751 GT and 109,744 kW in 2017 as opposed to 63,225 GT and 204,356 kW in 2003. That corresponds to a reduction of 34% in GT and a reduction of 46% in kW. There was a reduction in all gear segments except for GT1 where the increase in GT was 6% although there was a reduction in kW by 1%.

The situation has "stabilized" in recent years, although a minor tendency of increasing capacity in the trawl segment can be observed. However, the fleet capacity has been reduced substantially since 2003.

Fleet in the effort regime for the Baltic Sea

Vessels that took part in fisheries using gears that may target cod represented 4,496 GT and 24,296 kW in 2017 as opposed to 18,165 GT and 83,675 kW in 2003. That corresponds to a reduction of 75% in GT and 71% kW respectively.

As such there was a substantial capacity reduction in both the Western and Eastern Baltic Sea. The situation for the recent years indicates a tendency of further reductions. The fleet capacity for the vessels has been reduced with more than 70 % in terms of both GT and kW.

Section C

Statement of compliance with entry / exit scheme

The present fleet capacity is below the entry-exit ceiling as laid down in annex II of regulation 1380/2013. The margin in terms of tonnage is 20,636 GT and 106,234 kW. In percentage the capacity is almost 25% in GT below ceiling and in kW more than 30% below ceiling.

Denmark is in compliance with the entry-exit levels for tonnage as well as engine power.

Table C1. Management of capacity according to Regulation 1380/2013

	National register
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		GT	kW
1	Fleet ceiling according to annex II	88,762	313,333
2	Capacity of the fleet on 31 December 2017	68,125	206,910
3	Capacity ceiling minus actual capacity	20,636	106,234

Source: The Danish Fishery Agency Vessel Register per 29th January 2018.

Note 1: For National Register: Virtual capacity is not included in 2 and 3. Virtual capacity per 31st December 2017 is 18,298 GT and 98,764 kW.

Note 2: No exits financed with public aid in 2017.

Section D

Summary of weaknesses and strengths of the management system

a. Fisheries management system

The fisheries management underwent a change from a regime based on rations per period (individual non-transferable rations) to a regime based on primarily Individual Transferable Quotas (ITQ) and Vessel Quota Shares (VQS). This change caused a fall in the number of vessels as well as tonnage and engine power.

The purpose of the "New management" system was to create a new regulation of the Danish fishery to:

- initiate and develop a regulatory system (management model) that promotes a more sustainable exploitation of fish stocks, primarily by adapting the fishing capacity to fishing opportunities and reduce discards of fish.
- give the individual fishermen better opportunity to plan and run a fishery that fits his vessel and fishing activities,
- ensure basis for the fishery's total earnings,

The New management system divided the Danish fishing fleet into three segments:

- VQS – vessels that in the reference period 2003 - 2005 had been fishing for over 224,000 DKK¹, and landing one or more selected species included in the "New management". The vessels were assigned a Vessel Quota Share that can be transferred along with the vessel. Annual quotas based on Vessel Quota Shares can be transferred to other VQS vessels.
- LAV vessels - Less Active Vessels that in the reference period 2003 - 2005 had been fishing for under 224,000 DKK, and landing one or more of the VQS species included in the new management system. The vessels may enter the fishery of VQS species on ration terms.
- OV – Other vessels that in the reference period 2003-2005 did not land VQS species. The vessels may not land VQS species, unless that species is covered by the landing obligation.

The possibility to transfer quotas has resulted in a decrease in the number of vessels and in the capacity of the fleet without using decommission as a financial instrument.

¹ The threshold for commercial vessels in 2005.

a. Fleet management system

The fleet management system in Denmark is based on an entry-exit regime.

All fishing vessels have to be registered in the vessel register of The Danish Maritime Authority as well as the vessel register of the Danish Fisheries Agency² (Order no. 886 of 28th of June 2017 on vessels used for commercial fishery, § 3).

A vessel is only allowed to enter the fishing fleet if one or more other vessels have been removed from the above mentioned registers. It is a precondition that tonnage and engine power of the vessel used for fishery does not exceed the tonnage and engine power from that or those vessels, which were or are to be cancelled (§ 7).

It is not allowed to increase tonnage, size or engine power of a vessel without the permission of the Danish Fisheries Agency (§ 10). The Danish Fisheries Agency can only allow the increase in tonnage or engine power of a vessel if the owner of the vessel also withdraws the same quantity in the form of virtual capacity or as physical capacity from the fleet (§ 9).

Virtual capacity is defined as tonnage and engine power (measured in kW), which used to be connected to vessels now erased from the above mentioned registers (§ 2) and as such virtual capacity is held by persons as a legal right and not in physical vessels. It is allowed to sell virtual capacity. There is no virtual capacity on vessels which have received any subsidy regarding final exit of the fleet (§ 11).

The concept of virtual capacity means that the entitlement to capacity can be kept even when a vessel is scrapped (without economic aid) or sold outside the EU. It works as an incentive to keep unnecessary capacity out of the physical fleet. On the other hand, the possibility to increase the fleet is limited by the market based system of fishing rights to the effect that holders of virtual capacity will only enter new capacity into the fleet if they have the fishing rights to keep the vessel active.

The vessel owners have to forward documentation concerning the capacity involved in replacements and modernizations. This documentation is verified in the Danish Fisheries Agency's database for fleet management.

A general weakness concerning all EU fleets in the EU fleet management system is the verification of engine power. In the Danish management system the definition of engine power of Regulation 2930/86 is implemented and derating of engine power is not allowed.

The regulation of capacity ensures that capacity can never increase over the level at the starting point.

The administrative system as such, concerning the administration of the entries and exits in the fleet is considered to work satisfactorily.

b. kW in Kattegat and North Sea/Skagerrak – effort regulation

² The Danish Fisheries Agency was extracted from the Danish Agriculture and Fisheries Agency by royal resolution of 8th of August 2018.

As of January 1st 2017 Member States are required to stay within the overall limits of the capacity ceiling in the geographical areas covered. In Denmark, there is a capacity ceiling in Kattegat and North Sea/Skagerrak.

Section D

Plan for improvement in fleet management system

The current Danish management system is considered to be well functioning in order to secure a balance between fishing opportunities and capacity. Therefore, there are no current plans for changes.

Section D

Information on general level of compliance with fleet policy instruments

Respect of reference level and entry-exit level is ensured by the fleet management. Since permits for new capacity are only issued if there is a previous withdrawal of capacity, total physical capacity will never be higher than the ceilings. And since the system works with individual permits which can be kept as virtual capacity, physical capacity tends to be well below the ceilings.

Unused capacity, including safety capacity and the capacity premium for decommissioning, is not reallocated. In combination with the market based regulation of a substantial part of the fishery the fleet management will tend to ensure a long term balance between fishing capacity and fishing possibilities.

Compliance is ensured by an active fisheries inspection by control vessels, control units in the fishing port as well as administrative checks and control activity.

Below is a table showing information on infringements and inspections on the main management measures in 2017.

Table D1. Number of infringements and accomplished inspections in 2017

Number of infringement cases	Administrative controls	Inspections in port	Inspections at sea	Total
1.1. Registration – license, authorisation etc.	3	4	3	10
1.2. Vessel not license as fishing vessel		3		3
1.3. Quotas and quantitative rationing	18	2		20
1.4. Limitations relating to gear and catch method	1	2	16	19
1.5. Area restrictions		1	7	8
2.1 Refusal of control		2	1	3
3.1 Other information obligations		3		3
4. Illegal catch composition, undersized, Landing obligation and other		20	7	27
5.1 Logbook Order and other matters	59	54	4	117
5.2. Control Order and other matters	7	1		8
5.3. Notifications	72	14	1	87

6.1. Infractions at the landing and marketing of fish	3	9		12
9.5. Other IUU		4		4
10. Other criminal offenses	1			1
Total	164	119	39	322
Number of inspections	955	2.725	544	3.269

Section E

Information on changes of the administrative procedures relevant to fleet management

In 2016 the rules regarding maximum ownership of fishing rights were expanded. In 2012, there was introduced a limit on how much quota could be placed on single vessel, and also limits on how much quota a single fisherman could own for many demersal and pelagic quotas. In 2016, these rules were expanded to 6 more quotas. The quotas added were Northern Prawn in three different quota areas, hake, turbot and brill, and salmon. A limit of quota ownership for part-time fishermen was also introduced to avoid so called "slipperskippers". The limit for the value of quota was set at a value of 250.000 DKK.

There have been introduced a scheme making it easier for young fishermen to obtain a fishing vessel, by allocating a part of the Danish allocation of kW and BT in a reserve, which can then be applied for on a temporary basis by young fishermen hoping to buy their first vessel. This will make it easier for them, since they will not have to buy all of the needed capacity (kW and BT) at market prize. The new rules were introduced by order no. 886 of 28th June 2017 on vessels used for commercial fishery (chapter 6, §§ 19-21). In continuation of this all capacity (kW and BT) not registered with the Danish fisheries Agency no later than 1st July 2018 will be allocated to the reserve.

Section F

Estimation and discussion of balance indicators

The technical, biological and economic indicators are calculated in accordance with the guidelines issued by the Commission, taking into account that data is available at fleet segment level. The results are presented for 19 fleet segments, according to the Data Collection Regulation. The fleets VL1218 TBB and VL1824 TBB that is fishing for brown shrimp in the Wadden Sea, and the VL1012m DRB and VL1218m DRB that is fishing mussels are included, but they are not subject to quotas set at the EU level. These four fleet segments are subject to specific entry restrictions. It should also be noted that the DTS gear type from 2008 to 2011 also included TM, while separate specification of TMs are included from 2012. Comparison of fleet performance between years should therefore be done with caution.

i) Technical indicator(s)

The two technical indicators recommended in the EC guidelines: 1) The inactive fleet indicator and 2) The vessel utilisation indicator are presented in the following.

The Inactive fleet indicator

The number (No.), gross tonnage (GT) and engine power (kW) of inactive vessels, total vessels and share of inactive vessels within each length group are presented in Table F.1. By taking the share between the inactive vessels and the total vessels, the inactive fleet indicator is calculated. The length group VL0010m has a relative high percentage of inactivity, regardless if measured in number of vessels (44%), gross tonnage (29%) or engine power (31%). According to the EC guidelines, an inactivity level more than 20% indicates technical inefficiency. If this measure is used, the VL0010m is technical inefficient, however it has been reduced over the years. The other length groups do have a lower share of inactivity (below 6%), regardless of the measurement. Although the total Danish fleet has a high amount of inactive vessels (36%), the total inactivity of physical capacity is rather low with 6% of GT and 10% of kW, which in 2016 was 3% of GT and 9% of kW.

Table F.1. Ratios between inactive and total number of vessels in 2017

Length	Inactive ¹⁾			Total ²⁾			Share of inactivity (%)		
	No.	GT	kW	No.	GT	kW	No.	GT	kW
VL0010m	761	1,207	15,822	1,736	4,096	51,285	44	29	31
VL1012m	6	60	423	104	1,262	10,948	6	5	4
VL1218m	13	286	1,667	229	8,472	39,759	6	3	4
VL1824m	2	213	435	66	6,771	18,366	3	3	2
VL2440m	0	0	0	39	12,060	25,334	0	0	0
VL40XXm	1	2,135	2,999	29	35,459	61,217	3	6	5
Total	783	3,901	21,346	2,203	68,120	206,909	36	6	10

Source: The Danish Fisheries Agency Vessel Register and Logbook Register 11th April 2018.

¹⁾ Includes vessels not having any catch value in 2017, but in the Vessel Register per 31st December 2017.

²⁾ Includes vessels in the Vessel Register per 31st December 2017.

The vessel utilisation indicator

The ratio between days at sea and maximum days at sea for each length group and gear type is presented in Table F.2. By taking the ratio between average and maximum number of sea days, an expression for technical capacity utilisation is calculated. The maximum number of days at sea within a fleet segment has been set equal to the most active vessel within each year. This method is chosen, because there is a large variation in the maximum possible of days at sea between the fleet segments and within fleet segments. For example, the larger vessels will usually have more days at sea per year than the smaller vessels, operated only by one fisherman. By using the maximum observed days at sea for each fleet segment, this will be taken into account. At the same time, it ensures that the ratio between average days at sea and maximum days at sea does not exceed a value of 1.

Table F.2. Ratios between average days at sea and maximum days at sea^{1) 2)}

Length	Gear	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
VL0010	DTS	0.42	0.59	0.34	0.30	0.54	0.46	0.29	0.29	0.32	0.28
	PGP	0.17	0.17	0.17	0.19	0.15	0.16	0.14	0.13	0.11	0.12

	PMP					0.25	0.23	0.21	0.23	0.26	0.21
VL1012	DRB	0.51	0.43	0.50	0.65	0.75	0.53	0.59	0.57	0.65	0.50
	DTS	0.45	0.53	0.83		0.81	0.73	0.58	0.55	0.62	0.52
	PGP	0.45	0.44	0.43	0.42	0.43	0.47	0.44	0.45	0.43	0.39
	PMP	0.54	0.49	0.58	0.56	0.48	0.56	0.42	0.43	0.49	0.49
VL1218	DRB	0.35	0.45	0.38	0.52	0.49	0.39	0.39	0.44	0.41	0.45
	DTS	0.50	0.44	0.42	0.45	0.47	0.47	0.49	0.43	0.44	0.45
	PGP	0.47	0.48	0.61	0.45	0.51	0.48	0.45	0.49	0.45	0.48
	PMP	0.54	0.55	0.48	0.52	0.37	0.35	0.43	0.45	0.49	0.41
	TBB	0.69	0.70	0.79	0.66	0.76	0.78	0.79	0.73	0.77	0.80
	TM					0.53	0.49	0.70	0.58	0.63	0.79
VL1824	DTS	0.47	0.52	0.50	0.47	0.48	0.47	0.55	0.54	0.53	0.56
	PMP	0.43	0.60	0.62	0.62	0.66	0.77	0.74	0.70	0.64	0.72
	TBB	0.87	0.85	0.79	0.66	0.76	0.72	0.78	0.72	0.81	0.80
VL2440	DTS	0.66	0.67	0.64	0.62	0.67	0.69	0.72	0.78	0.75	0.73
	PMP							0.72	0.63	0.87	0.78
VL40XX	DTS	0.77	0.69	0.90	0.64	0.63	0.74	0.76	0.92	0.47	0.55
	TM					0.67	0.66	0.65	0.68	0.60	0.61

Source: The Danish Fisheries Agency Vessel Register and Sales Notes Register 11th April 2018.

Notes: ¹⁾ Covers only active vessels

²⁾ See Appendix 4 for the figures used for the calculations

From Table F.2, it is observed that ratios are generally increasing with the vessel length. The major part of the vessels in the fleet segments above 24 meters has been managed with Individual Transferable Quotas (ITQ) since 2003, and a relative high ratio is observed for these vessels. All other fleets (except DRBs and TBBs) has since 2007 been managed with transferable Vessel Quota Shares (VQS), and an increasing ratio is expected in the coming years, and is to some extent partly already reflected in the figures.

Making strong conclusions about presence of technical overcapacity are difficult, because each fleet segment is not very homogeneous, thereby having a large variation in the maximum observed days at sea. A value below 0.7 is in the Commission guidelines considered to indicate the presence of technical overcapacity, and if this is applied to the above figures, technical overcapacity is present in 16 of the 20 fleet segments in 2016 and in 14 segments in 2017. The six fleets that do not indicate technical overcapacity in 2017 include two entry-restricted fisheries for mussels and shrimps (VL1218m TBB, and VL1824 TBB) as well as VL1218m TM, 1824m PMP, and VL2440m DTS and PMP. The low technical utilisation rate of the smaller fleet segments generally below 12 metres, but specifically VL0010m PGP and VL0010m PMP is due to the presence of a relatively large amount of non-commercial vessels in these groups. A more appropriate way of estimating the technical efficiency of these segments will be to calculate the technical indicator based on only commercial vessels, which also have the largest impact on the stocks fished on. Especially for the fleet segments below 12 metres, this will lead to an improvement of the vessel utilisation indicator.

ii) Biological indicators

The Sustainable Harvest Indicator (SHI) and Stock-at-risk Indicator (SAR) presented in this report are copied from "Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities (STECF-17-08)".

The SHI values for the individual segments in 2015 are mainly determined by the proportion of landings value from the North Sea and Western Baltic cod stocks (overfished), the flatfish (mainly North Sea plaice and IIIa sole, fished at F_{MSY}), Norway lobster (mainly in Kattegat and Skagerrak at F_{MSY}) and the pelagic stocks (mainly North Sea herring fished at F_{MSY}), plus mackerel and sprat in the Baltic fished above F_{MSY} . Most of the industrial species fished by Denmark do not have a defined F_{MSY} , so SHI cannot be calculated for a large proportion of the Danish landings.

Table F.3. Sustainable Harvest Indicator (SHI)

Length	Gear	2009	2010	2011	2012	2013	2014	2015	Trend (5%)
VL0010	DTS	1.3	1.0	0.9	1.3	1.1	1.0	1.0	no trend
	PGP	2.1	2.0	1.9	2.0	2.0	1.9	1.8	decreasing
	PMP	1.8			1.8	1.6	1.5	1.5	decreasing
VL1012	DTS	2.2	2.1		1.6	1.5	1.8	1.5	no trend
	PGP	2.3	2.3	2.4	2.5	2.4	2.0	2.1	decreasing
	PMP	1.9	1.7	1.7	1.4	1.4	1.3	1.3	decreasing
VL1218	DTS	1.3	1.1	1.1	1.4	1.2	1.0	1.0	decreasing
	PGP	1.8	1.6	1.5	1.5	1.3	1.3	1.3	decreasing
	PMP	1.6	1.5	1.4	1.5	1.5	1.4	1.1	decreasing
	TM				1.0	1.2	1.0	0.9	no trend
VL1824	DTS	1.3	1.2	1.2	1.3	1.2	1.1	1.1	no trend
	PMP	1.8	1.6	1.4	1.3	1.1	1.2	1.1	decreasing
VL2440	DTS	1.2	1.1	1.2	1.1	1.1	1.2	1.1	no trend
VL40XX	DTS	1.0	1.0	1.0	0.8	0.8	0.9	0.8	no trend
	TM				0.8	0.9	0.9	0.9	no trend

SHI for Danish fleet segment where on average more than 40% of the landings value are from stocks with estimated F and F_{MSY} and with SHI for 2015.

Ten of fifteen segments may not be in balance ($SHI > 1$) with their fishing opportunities in 2015 (Table F.3). The small vessels with a high proportion of North Sea cod or Western Baltic cod have a $SHI > 1$ ("out of balance"). The large pelagic trawlers have $SHI < 1$ ("in balance") due to their high proportion of North Sea herring. The SHI indices by segment show no trend or a decreasing trend. Fishing mortalities have in general decreased for the individual stocks since 2015 and will probably decrease SHI more for most segments in the most recent years.

The SAR indicator (Table F.4) for the Danish segments in 2015 is mainly determined by landings of Western Baltic cod with SSB below Blim. Other stocks at risk with a low total catch but high

proportion by Danish segments, e.g. sandeel (san.sa.4), contribute also. Ten of eighteen segments have the SAR in balance (values ≤ 0) in 2015. There is no general trend in SAR values.

Table F.4. Stocks-at-risk indicator (SAR)

Length	Gear	2009	2010	2011	2012	2013	2014	2015
VL0010	DTS	0	0	0	1	0	0	0
	PMP	2			1	1	1	1
VL1012	DRB	-1	0	0	-1	0	-1	0
	DTS	1	1		0	0	1	1
	PGP	2	2	1	1	2	1	1
	PMP	1	1	1	0	1	0	0
VL1218	DRB	0	0	0	0	0	0	-1
	DTS	1	1	2	1	4	2	1
	PGP	1	1	1	1	0	0	0
	PMP	1	1	0	1	0	1	0
	TBB	0	0	0	1	1	0	0
	TM				1	1	1	0
VL1824	DTS	2	2	2	2	2	2	3
	PMP	1	1	2	1	0	0	0
	TBB	-1	0	0	1	1	0	1
VL2440	DTS	1	2	0	1	2	1	2
VL40XX	DTS	2	1	2	1	1	1	0
	TM				1	1	3	1

iii) Economic indicators

The two indicators recommended in the EC guidelines: 1) Return on investment (ROI) per fleet segment and 2) Current revenue in proportion to break-even revenue per fleet segment are presented in the following.

Return on investment (ROI)

Return on investment (ROI) is defined as net profit, which is profit after capital stock depreciation, divided by the capital asset value, which consists of the vessel replacement value and the estimated value of fishing rights (net profit/capital asset value), according to EC guidelines. The ROI for the Danish fleet for the years 2008-2016 is shown in Table F.5.A.-F.5.D below for various approaches.

Table F.5.A. Return on investments excl. income and costs from fishing rights

Length	Gear	2008	2009	2010	2011	2012	2013	2014	2015	2016
VL0010	DTS	-0.49	-0.12	-0.06	-0.09	-0.10	-0.05	-0.02	0.02	0.01
	PGP	-0.25	-0.13	-0.10	-0.10	-0.09	-0.07	-0.11	-0.10	-0.12
	PMP	-0.22	-0.20	.	.	-0.08	-0.10	-0.12	-0.03	-0.02

VL1012	DRB	-0.03	0.00	-0.03	-0.01	-0.01	0.07	0.15	0.29	0.17
	DTS	-0.05	-0.10	-0.05	.	-0.05	-0.05	-0.04	0.00	-0.01
	PGP	-0.16	-0.08	-0.09	-0.06	-0.04	-0.04	-0.06	-0.03	-0.01
	PMP	-0.26	-0.15	-0.05	-0.07	-0.06	-0.07	-0.07	0.00	-0.01
VL1218	DRB	-0.03	-0.09	-0.07	-0.04	-0.03	-0.01	0.14	0.22	0.17
	DTS	-0.03	-0.03	0.01	0.00	-0.01	0.00	-0.01	0.02	0.02
	PGP	-0.09	-0.03	0.00	0.00	-0.02	-0.01	-0.04	-0.01	0.01
	PMP	-0.04	-0.03	0.00	-0.03	-0.01	-0.01	-0.01	0.01	0.01
	TBB	0.10	-0.15	-0.05	-0.11	0.06	0.06	0.01	-0.06	0.17
	TM	.	.	.	.	0.00	0.04	0.05	0.08	0.07
VL1824	DTS	0.01	-0.01	0.01	0.02	0.00	0.00	0.02	0.05	0.03
	PMP	-0.02	-0.03	0.02	0.02	0.01	0.03	0.03	0.06	0.06
	TBB	0.06	-0.09	-0.10	-0.09	0.05	0.04	0.01	0.01	0.23
VL2440	DTS	-0.02	0.00	0.03	0.01	0.00	0.02	0.03	0.06	0.06
VL40XX	DTS	0.01	0.01	0.12	0.12	0.08	0.05	0.03	0.12	0.14
	TM	.	.	.	.	0.10	0.08	0.04	0.08	0.07

Source: Call for fleet economic scientific data concerning 2008-2017, EC, Ref. Ares(2018)503965 - 29/01/2018

Table F.5.B. Return on investments incl. income and costs from fishing rights

Length	Gear	2008	2009	2010	2011	2012	2013	2014	2015	2016
VL0010	DTS	-0.49	-0.12	-0.06	-0.09	-0.11	-0.03	-0.01	0.02	0.01
	PGP	-0.26	-0.14	-0.11	-0.08	-0.09	-0.06	-0.11	-0.09	-0.12
	PMP	-0.23	-0.21	.	.	-0.09	-0.10	-0.12	-0.04	-0.02
VL1012	DRB	-0.03	0.00	-0.03	-0.01	-0.01	0.07	0.15	0.30	0.18
	DTS	-0.05	-0.10	-0.06	.	-0.06	-0.05	-0.05	0.00	-0.03
	PGP	-0.18	-0.08	-0.10	-0.05	-0.05	-0.03	-0.06	-0.04	-0.02
	PMP	-0.26	-0.15	-0.05	-0.06	-0.07	-0.08	-0.08	-0.01	-0.02
VL1218	DRB	-0.03	-0.09	-0.07	-0.04	-0.03	-0.01	0.13	0.23	0.17
	DTS	-0.03	-0.04	0.00	-0.02	-0.02	-0.01	-0.01	0.01	0.02
	PGP	-0.12	-0.05	-0.01	-0.01	-0.03	-0.01	-0.04	-0.02	0.01
	PMP	-0.04	-0.05	-0.02	-0.02	-0.02	-0.01	-0.02	0.01	0.00
	TBB	0.10	-0.15	-0.05	-0.10	0.05	0.05	0.04	-0.05	0.17
	TM	.	.	.	.	0.01	0.04	0.04	0.07	0.08
VL1824	DTS	-0.01	-0.02	-0.01	0.01	-0.01	-0.01	0.02	0.03	0.03
	PMP	-0.05	-0.04	0.00	0.00	0.00	0.01	0.00	0.04	0.03
	TBB	0.06	-0.09	-0.10	-0.08	0.04	0.03	0.01	0.02	0.23
VL2440	DTS	-0.04	0.00	0.03	0.00	-0.01	0.01	0.03	0.04	0.04

VL40XX	DTS	0.01	0.01	0.11	0.11	0.09	0.08	0.03	0.10	0.11
	TM	.	.	.	.	0.09	0.08	0.05	0.08	0.08

Source: Call for fleet economic scientific data concerning 2008-2017, EC, Ref. Ares(2018)503965 - 29/01/2018

According to the Commission guidelines, the indicator should be adjusted for the current long-term interest rate. This is done in Table F.5.C. and Table F.5.D. below.

Table F.5.C. Return on investments (ROI) adjusted with long term interest rate* and excl. income and costs from fishing rights

Interest rate		4.29	3.59	2.93	2.73	1.40	1.75	1.33	0.69	0.32
Length	Gear	2008	2009	2010	2011	2012	2013	2014	2015	2016
VL0010	DTS	-0.54	-0.15	-0.09	-0.12	-0.11	-0.06	-0.03	0.02	0.01
	PGP	-0.30	-0.17	-0.13	-0.13	-0.10	-0.09	-0.12	-0.11	-0.12
	PMP	-0.26	-0.23	.	.	-0.10	-0.12	-0.14	-0.04	-0.02
VL1012	DRB	-0.07	-0.04	-0.06	-0.04	-0.02	0.05	0.14	0.29	0.16
	DTS	-0.09	-0.13	-0.08	.	-0.07	-0.07	-0.06	0.00	-0.01
	PGP	-0.21	-0.11	-0.12	-0.09	-0.05	-0.06	-0.07	-0.04	-0.01
	PMP	-0.31	-0.18	-0.08	-0.09	-0.07	-0.08	-0.08	-0.01	-0.02
VL1218	DRB	-0.08	-0.13	-0.10	-0.07	-0.04	-0.03	0.13	0.22	0.17
	DTS	-0.07	-0.07	-0.02	-0.03	-0.02	-0.02	-0.02	0.01	0.02
	PGP	-0.13	-0.07	-0.03	-0.03	-0.03	-0.03	-0.05	-0.02	0.01
	PMP	-0.08	-0.07	-0.03	-0.05	-0.03	-0.03	-0.03	0.00	0.00
	TBB	0.06	-0.19	-0.08	-0.13	0.04	0.04	0.00	-0.06	0.16
	TM	.	.	.	.	-0.02	0.02	0.04	0.07	0.07
VL1824	DTS	-0.03	-0.04	-0.02	-0.01	-0.02	-0.01	0.01	0.04	0.03
	PMP	-0.06	-0.06	-0.01	-0.01	0.00	0.01	0.02	0.05	0.06
	TBB	0.02	-0.13	-0.13	-0.11	0.03	0.02	0.00	0.01	0.22
VL2440	DTS	-0.06	-0.03	0.01	-0.02	-0.02	0.00	0.02	0.05	0.05
VL40XX	DTS	-0.03	-0.03	0.09	0.09	0.07	0.03	0.02	0.11	0.14
	TM	.	.	.	.	0.09	0.06	0.03	0.07	0.07

Source: Call for fleet economic scientific data concerning 2008-2017, EC, Ref. Ares(2018)503965 - 29/01/2018

* The long-term interest rate for convergence purposes, European Central Bank

Table F.5.D. Return on investments (ROI) adjusted with long term interest rate* and incl. income and costs from fishing rights

Interest rate		4.29	3.59	2.93	2.73	1.40	1.75	1.33	0.69	0.32
Length	Gear	2008	2009	2010	2011	2012	2013	2014	2015	2016

VL0010	DTS	-0.54	-0.15	-0.09	-0.12	-0.13	-0.05	-0.03	0.01	0.00
	PGP	-0.31	-0.17	-0.14	-0.11	-0.10	-0.08	-0.12	-0.10	-0.12
	PMP	-0.27	-0.25	.	.	-0.10	-0.12	-0.13	-0.05	-0.02
VL1012	DRB	-0.07	-0.04	-0.06	-0.04	-0.02	0.05	0.13	0.29	0.18
	DTS	-0.09	-0.13	-0.09	.	-0.08	-0.06	-0.07	-0.01	-0.03
	PGP	-0.22	-0.12	-0.13	-0.08	-0.06	-0.05	-0.07	-0.04	-0.02
	PMP	-0.31	-0.19	-0.08	-0.09	-0.08	-0.10	-0.09	-0.02	-0.02
VL1218	DRB	-0.08	-0.13	-0.10	-0.07	-0.04	-0.03	0.12	0.22	0.16
	DTS	-0.08	-0.08	-0.03	-0.04	-0.03	-0.03	-0.02	0.01	0.01
	PGP	-0.16	-0.08	-0.04	-0.04	-0.04	-0.03	-0.05	-0.02	0.01
	PMP	-0.09	-0.08	-0.05	-0.05	-0.03	-0.02	-0.03	0.00	0.00
	TBB	0.06	-0.19	-0.08	-0.13	0.04	0.03	0.03	-0.06	0.17
	TM	.	.	.	.	-0.01	0.02	0.02	0.06	0.07
VL1824	DTS	-0.06	-0.06	-0.04	-0.02	-0.03	-0.03	0.00	0.03	0.03
	PMP	-0.09	-0.08	-0.03	-0.03	-0.01	-0.01	-0.01	0.03	0.03
	TBB	0.02	-0.13	-0.13	-0.11	0.02	0.01	0.00	0.01	0.22
VL2440	DTS	-0.08	-0.04	0.00	-0.03	-0.02	-0.01	0.02	0.03	0.04
VL40XX	DTS	-0.03	-0.03	0.08	0.08	0.07	0.07	0.01	0.09	0.11
	TM	.	.	.	.	0.08	0.07	0.03	0.08	0.07

Source: Call for fleet economic scientific data concerning 2008-2017, EC, Ref. Ares(2018)503965 - 29/01/2018

* The long-term interest rate for convergence purposes, European Central Bank

When the long-term interest rate is included there is a stronger trend over time towards larger negative values or smaller positive values. Including any income or costs from renting fishing quantities within a year does not change the overall picture. This income or cost may vary from year to year.

Especially the fleets below 12 meters are seen to consistently have negative ROIs, thus indicating economic over-capitalisation. The dredgers (DRB) are an entry-restricted fishery, but negative ROIs are observed during almost the period from 2008 to 2012 (being 0 in 2009), but from 2013 to 2016 it is positive for vessels between 10-12 meter. For dredgers between 12-18 meters ROI is negative between 2008-2013, being positive in 2014, 2015, and 2016.

The other entry-restricted fisheries, the TBBs, experienced negative ROIs from 2009-2011. In 2015 ROI was negative for the TBBs between 12-18 meters but it is positive in 2008 and 2016. For the larger TBBs between 18 and 24 meters a positive ROI was positive in 2008 and again from 2012 onwards.

The remaining fleet segments between 12 and 24 meters have ROIs varying around zero, thus indicating a reasonable balance. The fleets above 40 meters, which for many years have been managed with ITQs, are having positive ROIs, thus indicating economic under-capitalisation.

It should be noted that vessels below 24 metres are operated by 1-3 crew members including the owner. The standard salary is often higher than the realistic income for fishermen working in the small scale fishery. Moreover, in many cases the owner does not have capital costs. The market value of the vessel is often lower than assumed in the calculation and the owner does not expect a return on his investment in fishing rights.

Ratio between current revenue and break-even revenue

The ratio between current revenue and break-even revenue (CR/BER) is estimated as the current revenue divided by break-even revenue (fixed costs / 1 - (variable costs/current revenue)), according to the EC guidelines. Current revenue consists of income from fishing and other income while excluding any subsidies. The break-even revenue shows the level of revenue needed to cover all costs, thereby having a net profit of zero. Two versions of CR/BER are estimated. The first version includes opportunity cost of capital in the fixed costs (see Table F.6., right side), whereas the second version excludes the opportunity cost of capital (see Table F.6., left side). The opportunity cost of capital is calculated by the capital asset value and the long-term interest rate for Denmark. Both measures of CR/BER are good measures of economic sustainability. When the ratio is below 1, the current cash flow is not sufficient to cover the current costs, and so the activity is not economically balanced and sustainable.

Table F.6. Ratio between current revenue and break-even revenue incl. opportunity cost of capital (CR/BER)

Length	Gear	CR/BER, incl. opportunity cost of capital								
		2008	2009	2010	2011	2012	2013	2014	2015	2016
VL0010	DTS	-1.47	-1.48	0.47	0.31	0.22	-0.02	0.33	1.32	1.28
	PGP	-0.20	-0.20	0.11	0.08	0.26	0.27	-0.14	-0.09	-0.05
	PMP	0.13	-0.32	.	.	0.24	0.03	0.02	0.53	-0.05
VL1012	DRB	0.59	0.64	0.59	0.74	0.77	1.44	2.22	3.55	3.25
	DTS	0.67	0.14	-0.38	.	0.39	0.31	0.38	0.96	0.74
	PGP	0.32	0.16	0.28	0.31	0.44	0.39	0.22	0.57	0.85
	PMP	-0.26	-0.19	0.44	0.30	0.34	0.16	0.27	0.92	0.72
VL1218	DRB	0.54	0.43	0.45	0.68	0.62	0.78	2.00	3.22	3.13
	DTS	0.67	0.40	0.86	0.70	0.64	0.73	0.75	1.14	1.42
	PGP	0.53	0.44	0.73	0.70	0.63	0.79	0.53	0.81	1.11
	PMP	0.39	0.34	0.75	0.50	0.59	0.68	0.61	1.04	1.09
	TBB	1.28	-0.10	0.54	0.28	1.26	1.23	0.99	0.58	2.16
	TM	.	.	.	.	0.79	1.32	1.56	2.68	2.17
VL1824	DTS	0.82	0.62	0.85	0.94	0.78	0.81	1.13	1.64	1.72
	PMP	0.66	0.42	0.92	0.87	0.95	1.14	1.19	1.84	2.05
	TBB	1.11	0.32	0.36	0.34	1.23	1.14	0.96	1.04	2.70
VL2440	DTS	0.72	0.70	1.05	0.81	0.82	1.01	1.21	1.78	2.11
VL40XX	DTS	0.82	0.76	1.76	1.63	1.96	1.42	1.22	2.58	3.56

	TM	1.77	1.62	1.40	1.98	2.49
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Source: Call for fleet economic scientific data concerning 2008-2017, EC, Ref. Ares(2018)503965 - 29/01/2018
*Interest rate used to calculate the opportunity cost of capital is the long-term interest rate for convergence purposes, European Central Bank

Table F.7. Ratio between current revenue and break-even revenue excl. opportunity cost of capital (CR/BER)

Length	Gear	CR/BER, excl. opportunity cost of capital								
		2008	2009	2010	2011	2012	2013	2014	2015	2016
VL0010	DTS	-1.84	-3.57	0.57	0.37	0.24	-0.03	0.47	1.54	1.56
	PGP	-0.25	-0.26	0.14	0.11	0.29	0.32	-0.16	-0.09	-0.05
	PMP	0.15	-0.40	.	.	0.27	0.04	0.02	0.58	-0.06
VL1012	DRB	0.78	0.99	0.74	0.90	0.89	1.71	2.52	3.79	3.40
	DTS	0.79	0.18	-0.73	.	0.44	0.38	0.45	1.04	0.79
	PGP	0.37	0.22	0.34	0.39	0.52	0.47	0.26	0.62	0.89
	PMP	-0.32	-0.25	0.55	0.38	0.39	0.19	0.31	1.00	0.75
VL1218	DRB	0.73	0.51	0.54	0.77	0.70	0.90	2.22	3.46	3.26
	DTS	0.84	0.57	1.13	0.95	0.81	0.96	0.91	1.28	1.55
	PGP	0.63	0.61	1.00	0.98	0.74	0.92	0.60	0.87	1.16
	PMP	0.59	0.52	0.98	0.68	0.74	0.85	0.77	1.12	1.18
	TBB	1.60	-0.13	0.65	0.33	1.38	1.37	1.09	0.61	2.21
	TM	.	.	.	.	0.96	1.69	1.92	3.17	2.30
VL1824	DTS	1.06	0.89	1.11	1.26	0.94	1.04	1.36	1.84	1.87
	PMP	0.87	0.62	1.29	1.22	1.12	1.41	1.40	2.06	2.17
	TBB	1.43	0.40	0.42	0.40	1.37	1.30	1.08	1.10	2.77
VL2440	DTS	0.90	1.06	1.46	1.10	0.95	1.23	1.43	1.99	2.27
VL40XX	DTS	1.11	1.10	2.35	2.02	2.42	1.92	1.50	2.85	3.79
	TM	.	.	.	.	2.03	1.96	1.67	2.18	2.67

Source: Call for fleet economic scientific data concerning 2008-2017, EC, Ref. Ares(2018)503965 - 29/01/2018
*Interest rate used to calculate the opportunity cost of capital is the long-term interest rate for convergence purposes, European Central Bank

There is a tendency that the CR/BER values increase with vessel size within each gear type, indicating that the larger vessels generally have better economic performance. This tendency is not observed for the entry-restricted fisheries, DRB and TBB. The TBBs had values below 1 for 2009-2011, but values around or above 1 for 2008, 2012, 2013 and 2016 for both vessel lengths incl. opportunity costs of capital. In 2014 the CR/BER was close to 1 for the 12-18 meters TBB vessels (and above 1 excl. opportunity costs of capital), decreasing in 2015 to below 1, while increasing to more than 2 in 2016. For the larger 18-24 meters TBB vessels CR/BER was almost 1 in 2014 (slightly above 1 excl. opportunity costs of capital), 1 in 2015 and increased to 2.7 in 2016 (2.8 excl. opportunity costs of capital). This indicates that the economic

performance of these fisheries has a large variation. The DRBs, fishing for mussels, below 12 metres have values below 1 for the first five years, but then becomes above 1 in 2013 and onwards. The DRBs between 12 and 18 metres have values below 1 until 2014.

A more unclear picture is seen for remaining fleet segments. The only fishery that is economically viable through the entire period and thus able to cover current costs is the VL40XX DTS, and that is only when looking at the CR/BER method that excludes opportunity cost of capital. Including opportunity cost of capital, the VL10-12 DTS has a negative value in 2010, indicating that the variable costs are higher than the revenue. In 2008, 2009, 2012, 2013 and 2014, the CR/BER indicator was positive, and in 2015 close to but still below 1 incl. opportunity costs of capital (above 1 excl. opportunity costs of capital), while in 2016 it was also positive, indicating that the fleet has improved. Several other fisheries have experienced a negative CR/BER in some years, but in 2016, it was only VL0010 PGP and VL0010 PMP.

It can be observed that fourteen fleet segments had a CR/BER above 1 in 2016, which is the highest number looking at the period from 2008-2016.

iv) Summary and evaluation

According to Regulation 1380/2013, the report should include the annual assessment of fleet capacity and identify structural over-capacity for each segment. This assessment should be based on the balance between capacity and fishing possibilities.

According to the common guidelines as presented in a communication from the Commission (COM (2014) 545 final), the report should use a set of economic and biological indicators in combination to draw conclusions on imbalance for each fleet segment separately. The indicators are presented for the Danish fleet in section F.

The traffic light table, F8, includes indicators for 19 segments. The segments are numbered 1-19 to facilitate the understanding.

The segments 4, 8, 12, 16 are segments specialised in mussels and shrimps fisheries. These fisheries are restricted access and closely regulated and monitored.

The remaining segments are statistical categories defined by JRC. In this context, there are 5 groups which reflect the size and type of fishery as well as the mix of stocks fished by the statistically defined segments within the group. Over 24 metres, 12-24 metres and 0-12 metres. Within the group of small scale vessels is a subgroup consisting of non-commercial and inactive vessels.

So for the purpose of assessment of the balance the fleet is divided in the following fisheries relevant segments or groups:

Mussels

Brown shrimps

>24 metres

12-24 metres

<12 metres

Inactive and non-commercial vessels

Explanations given for each group applies to all statistical segments within the group.

Mussels fishery (4, 8)

This fishery is restricted access and ITQ managed. Fisheries are limited to specific areas and quotas are set according to assessment of the local stock. Earnings are generally good and improving. **The situation is stable and there is no need for action which is indicated by a green colour in the traffic lights table.**

Brown shrimps fishery (12, 16)

This fishery is limited to vessels on the list of beam trawlers specialised in shrimp fishery in the Wadden Sea area. Restricted access fishery. **The situation has improved and the situation is regarded stable and there is no need for action which is indicated by a green colour in the traffic lights table.**

Vessels over 24 metres (17, 18 and 19)

The vessels fish for pelagic and industrial species. The smaller ones also take some codfish, flatfish and prawn. Most of those stocks are in good condition which is also reflected in the SHI indicator for which is close to 1 for vessels over 24 metres. In conclusion, there is a good balance for these segments.

Economic indicators are also positive and have improved over time.

There is a good balance for this group which is indicated by a green colour in the traffic lights table.

Vessels 12-24 metres (9, 10, 11, 13, 14, 15, 16)

These vessels fish for a variety of species including cod fish, flat fish, prawn and industrial species. The SHI indicator is around 1 which shows that the vessels both fish on stocks with fishing mortality somewhat higher than the MSY based assessment, but also lower.

The SHI indicator is based on data from 2015 and for some stocks the situation has improved somewhat since then. Management of stocks is in transition to MSY based management and for this reason the SHI indicator exaggerates the imbalance. The SHI indicator only covers part of the fishery. It should also be taken into consideration that the capacity of this group of vessels has already been reduced considerably.

The economic indicators have improved and ROI minus current interest rate is close to zero and the current break even ratio is higher than 1 for all segments.

In assessing the economic indicators it should be taken into account that these vessels are operated by 1-3 crew members including the owner. The owner's remuneration is set at a standard salary which in many cases is higher than the real and realistic income for fishermen operating small vessels. At a more realistic pay to the owner the economic result would be higher. The earnings of these vessels are also strongly influenced by short term economic developments in prices and costs.

In conclusion, there is considered to be an acceptable balance between capacity and fishing possibilities which is indicated by a green colour in the traffic light table.

Vessels 0-12 metres including inactive and non-commercial vessels (1, 2, 3, 5, 6, 7)

These vessels fish on demersal stocks for flatfish, codfish, and Norway lobster. The biological indicators reflect a negative situation for some of the stocks fished by these vessels, mainly for cod stocks in the North Sea and the Baltic. The distribution of landings values show that a variety of species are fished by the small scale vessels. Most of these stocks are in a biological good state: There are unfished quotas available for i.e. flat fish and Norway lobster and the small vessels also have the possibility of fishing non quota species such as some flatfish and crab species.

Although return on investment is negative, but close to zero, for most segments, it must be kept in mind, that this is based on a high standard salary which is higher than the realistic income for fishermen operating small vessels.

The economic indicators cover active vessels with commercial earnings and these indicators have improved considerable recent years. Despite the modest earnings and dependency of some stock under rebuilding, it is considered that there is balance between capacity of the active commercial vessels and fishing possibilities.

As part of the EMFF programme for Denmark, a number of measures aim at improve the situation for small vessels. These include port facilities supporting small scale fishery, innovative project in the value chain (including markets for new species) and market promotion measures. In the regulatory system, coastal vessels are given special consideration and these vessels also receive special priority in the aid scheme for fishing ports as well as article 38 and article 42 investments. The remaining non-commercial vessels less than 12 metres include about 1,700 vessels and many of these have no registered activity. Although the number of vessels is high they are not involved in fishery of any importance. Almost all the non-commercial and inactive vessels are less than 10 metres and the quantities fished are so small that they are not important for the stocks.

A great share of the small vessels is owned by part-time fishermen. Part time fishermen are allowed to continue their activity at a low level provided they can keep an income of 5 % from fishery. They are important for the regional development in Denmark in order to keep some activity in small ports and coastal communities. But their activity is low and has no significant impact on the stocks at all.

Many owners of small non-commercial vessels keep their vessel for social and recreational purposes. Although they have the status of a fisherman or a part-time fisherman they are not economically dependent on the fishery. This is confirmed by a large number of inactive vessels under 10 metres and the inferior quantities landed by the non-commercial part of the small scale fleet (less than 1% of Danish landings). The potential capacity of the small scale fleet is around 1,700 vessels, 4,500 GT and 55,000 kW. In reality, in 2017 only 121 vessels in the small scale fleet were active at a commercial level. All the 1,816 vessels under 10 m, including the less active ones, fished around 5,200 tonnes of fish combined.

It is concluded that **the capacity of these vessels is not associated with commercial over-capacity and that they do not represent a real fishing capacity** which could lead to increased fishery. Even if they wanted to become commercial vessels they had to obtain quotas from other vessels and this is not believed to be a realistic scenario.

On the basis of the assessment above it is concluded that despite weaknesses in few segments, for the fleet in general there is **a good balance between capacity and fishing possibilities. The traffic lights show the interpretation for each segment.**

Table F. 8. Traffic lights

No.	Length	Gear code	ROI	Current/Break-even		Sustainable Harvest Indicator	Stocks at Risk indicator	Technical indicators		Over all assesment	
				Incl. opp.	Excl. opp.			Inac-tivity	Utili-sation		
1	VLOO10	DTS	0.01	1.28	1.56	1.0	0	44	0.28	Mainly inactive or less active vessels non commercial vessels	
2	VL0010	PGP	-0.12	-0.05	-0.05	1.8					0.12
3	VL0010	PMP	-0.02	-0.05	-0.06	1.5	1					0.21
4	VL1012	DRB	0.16	3.25	3.40		0	6	0.50	Mussels	
5	VL1012	DTS	-0.01	0.74	0.79	1.5	1			0.52	
6	VL1012	PGP	-0.01	0.85	0.89	2.1	1				0.39	Mixed Demersal
7	VL1012	PMP	-0.02	0.72	0.75	1.3	0			0.49	
8	VL1218	DRB	0.17	3.13	3.26		-1	6	0.45	Mussels	
9	VL1218	DTS	0.02	1.42	1.55	1.0	1			0.45	
10	VL1218	PGP	0.01	1.11	1.16	1.3	0				0.48	Mixed Demersal
11	VL1218	PMP	0.00	1.09	1.18	1.1	0			0.41	
12	VL1218	TBB	0.16	2.16	2.21		0				0.80	Brown Shrimps
13	VL1218	TM	0.07	2.17	2.30	0.9	0			0.79	Pelagic
14	VL1824	DTS	0.03	1.72	1.87	1.1	3	3	0.56	Mixed	
15	VL1824	PMP	0.05	2.05	2.17	1.1	0			0.72	
16	VL1824	TBB	0.22	2.70	2.77		1				0.80	Brown Shrimps
17	VL2440	DTS	0.05	2.11	2.27	1.1	2	0	0.73	Mixed	
18	VL40XX	DTS	0.14	3.56	3.79	0.8	0	3	0.55	Pelagic + Industrial	
19	VL40XX	TM	0.07	2.49	2.67	0.9	1				0.61
	COM guideline		>0	>1	>1	<1	0	< 10	>0,9		
				>0<1	>0<1		>0				
				<0	<0	<0	>40% from assessed stocks >1 for 3 years	>10% from SAR	>20	<0,7	

Annex 1. Gear Codes and length classes

FISHING TECHNIQUE

(Gear Codes)

DFN	=	Drift and/or fixed netters
DRB	=	Dredgers
DTS	=	Demersal trawlers and/or demersal seiners
PTS	=	Pelagic trawl and/or pelagic seiners
FPO	=	Vessels using pots and/or traps
HOK	=	Vessels using hooks
MGO	=	Vessel using other active gears
MGP	=	Vessels using polyvalent active gears only
PG	=	Vessels using passive gears only for vessels < 12m
PGO	=	Vessels using other passive gears
PGP	=	Vessels using polyvalent passive gears only
PMP	=	Vessels using active and passive gears
PS	=	Purse seiners
TM	=	Pelagic trawlers
TBB	=	Beam trawlers

VESSEL LENGTH classes

VL0006	=	Vessel less than 6 meters in length. *For Supra region 2 only.
VL0010	=	Vessel between 0 meters and 10 meters in length. **For Supra region 1 and 3 only.
VL0612	=	Vessel between 6 meters and 12 meters in length. *For Supra region 2 only.
VL1012	=	Vessel between 10 meters and 12 meters in length. **For Supra region 1 and 3 only.
VL1218	=	Vessel between 10 meters and 18 meters in length. All regions.
VL1824	=	Vessel between 18 meters and 24 meters in length. All regions.
VL2440	=	Vessel between 24 meters and 40 meters in length. All regions.
VL40XX	=	Vessel greater than 40 meters in length. All regions.

Annex 2. Capacity of registered Danish fishing vessels, 2017

Tonnage in GT, 2017

Length	Gear	Commercial ¹⁾	Non-commercial ²⁾	Inactive ³⁾	Not registered 31 st December ⁴⁾	Total
VL0010m	DTS	34	33	18	13	98
	PGP	555	1,827	1,084	220	3,685
	PMP	222	378	113	37	750
	Total	811	2,238	1,215	270	4,533
VL1012m	DRB	169	16	16	22	222
	DTS	158	17	5	16	196
	PGP	414	174	47	20	655
	PMP	317	82	0	48	447
	Total	1,057	289	69	105	1,521
VL1218m	DRB	1,126	0	31	12	1,168
	DTS	4,032	71	48	495	4,646
	PGP	792	42	38	82	954
	PMP	1,022	63	85	145	1,315
	TBB	548	0	0	0	548
	TM ⁵⁾	606	0	0	0	606
	Total	8,126	176	201	733	9,237
VL1824m	DTS	4,459	0	158	360	4,977
	PMP	1,399	0	0	0	1,399
	TBB	1,076	0	61	0	1,137
	Total	6,934	0	219	360	7,513
VL2440m	DTS ⁶⁾	10,137	0	0	624	10,761
	PMP	1,186	0	0	242	1,429
	Total	11,323	0	0	866	12,190
VL40XXm	DTS	7,957	0	0	0	7,957
	TM ⁷⁾	27,230	0	0	4,629	31,859
	Total	35,187	0	0	4,629	39,816
Total		63,438	2,703	1,703	6,964	74,809

See Annex 1 for explanation of Gear Codes

Source: The Danish Fisheries Agency Vessel Register and Sales Notes Register 11th April 2018.

Notes: ¹⁾ Includes vessels with a yearly catch value above € 36,000.

²⁾ Includes vessels with a yearly catch value below € 36,000 but above € 0.

³⁾ Includes vessels not having any catch value within the year.

⁴⁾ Includes vessels not being active by the end of the year.

⁵⁾ For discretionary purposes, VL1824m TM has been included in VL1218m TM.

⁶⁾ For discretionary purposes, VL24XXm TBB has been included in VL2440m DTS.

⁷⁾ For discretionary purposes, VL40XXm PS has been included in VL40XXm TM.

Engine power in kW, 2017

Length	Gear	Commercial ¹⁾	Non-commercial ²⁾	Inactive ³⁾	Not registered 31 st December ⁴⁾	Total
VL0010m	DTS	382	327	361	108	1,178
	PGP	5,923	22,145	13,736	2,023	43,827
	PMP	2,532	4,154	1,725	714	9,125
	Total	8,837	26,626	15,822	2,845	54,130
VL1012m	DRB	571	43	87	111	812
	DTS	1,798	330	0	184	2,312
	PGP	3,560	1,036	258	493	5,347
	PMP	2,363	824	78	183	3,448
	Total	8,292	2,233	423	971	11,919
VL1218m	DRB	4,729	239	89	0	5,057
	DTS	20,042	431	352	1,495	22,320
	PGP	3,629	228	286	0	4,143
	PMP	4,942	578	709	391	6,620
	TBB	1,998	0	0	0	1,998
	TM ⁵⁾	1,276	0	231	0	1,507
	Total	36,616	1,476	1,667	1,886	41,645
VL1824m	DTS	11,101	0	435	745	12,281
	PMP	3,964	0	0	0	3,964
	TBB	2,866	0	0	221	3,087
	Total	17,931	0	435	966	19,332
VL2440m	DTS ⁶⁾	23,543	0	0	997	24,540
	PMP	1,791	0	0	746	2,537
	Total	25,334	0	0	1,743	27,077
VL40XXm	DTS	12,013	0	2,999	10,266	25,278
	TM ⁷⁾	46,205	0	0	1,595	47,800
	Total	58,218	0	2,999	11,861	73,078
Total		155,228	30,335	21,346	20,272	227,181

See Annex 1 for explanation of Gear Codes

Source: The Danish Fisheries Agency Vessel Register and Sales Notes Register 11th April 2018.

Notes: ¹⁾ Includes vessels with a yearly catch value above € 36,000.

²⁾ Includes vessels with a yearly catch value below € 36,000 but above € 0.

³⁾ Includes vessels not having any catch value within the year.

⁴⁾ Includes vessels not being active by the end of the year.

⁵⁾ For discretionary purposes, VL1824m TM has been included in VL1218m TM.

⁶⁾ For discretionary purposes, VL24XXm TBB has been included in VL2440m DTS.

⁷⁾ For discretionary purposes, VL40XXm PS has been included in VL40XXm TM.

Annex 3. Link with fisheries for commercial and non-commercial vessels

Distribution landing value in 2017 (%)

Group	Length	Gear	Round-fish	Flatfish	Lobster and shrimp	Mackerel and herring	Other species	Reduction species ¹⁾	Entry-restricted ²⁾	Total landing value (€ 1,000) ⁶⁾
Commercial	VL0010 m	DTS	38	47	14	0	1	0	0	738
		PGP	29	26	8	2	33	0	1	7,125
		PMP	34	49	13	1	4	0	0	2,930
	VL1012 m	DRB	2	6	0	7	1	3	81	1,300
		DTS	39	31	22	0	1	7	0	1,954
		PGP	44	42	0	1	9	2	1	4,486
		PMP	30	49	12	0	4	5	0	2,804
	VL1218 m	DRB	0	0	0	1	1	0	98	12,963
		DTS	22	24	44	0	1	9	0	36,241
		PGP	38	59	1	0	3	0	0	8,797
		PMP	30	35	31	0	2	2	0	8,674
		TBB	0	0	0	0	0	0	100	5,040
	TM ³⁾	1	1	3	33	0	62	0	5,902	
	VL1824 m	DTS	21	34	27	3	1	14	0	38,399
		PMP	20	48	18	0	3	12	0	14,172
TBB		0	7	0	0	0	0	92	10,159	
VL2440 m	DTS	52	26	14	0	1	8	0	82,006	
	PMP	78	21	0	0	1	0	0	11,472	
VL40XX m	DTS	0	0	0	12	0	45	43	38,863	
	TM ⁵⁾	0	0	0	61	0	39	0	163,898	
Non-commercial	VL0010 m	DTS	6	50	37	1	6	0	0	70
		PGP	17	28	13	2	40	0	0	5,148
		PMP	26	39	7	1	21	0	6	695
	VL1012 m	DRB	0	100	0	0	0	0	0	1
		DTS	24	46	29	0	1	0	0	21
		PGP	49	24	2	0	25	0	0	228
		PMP	23	53	23	0	0	0	0	195
	1218m	DRB	0	0	0	0	0	0	100	42
		DTS	9	35	40	0	17	0	0	85
		PGP	26	6	0	0	67	0	0	51
PMP		22	38	39	0	1	0	0	104	

See Annex 1 for explanation of Gear Codes

Source: The Danish Fisheries Agency Vessel Register and Sales Notes Register 11th April 2018.

Notes: ¹⁾ Species such as sand eel, blue whiting, sprat, horse mackerel and Norway pout.

²⁾ Species that can only be caught with a authorization, i.e. mussels, oysters, brown shrimps and shrimps in the waters around Greenland.

³⁾ For discretionary purposes, VL1824m TM has been included in VL1218m TM.

⁴⁾ For discretionary purposes, VL24XXm TBB has been included in VL2440m DTS.

⁵⁾ For discretionary purposes, VL40XXm PS has been included in VL40XXm TM.

⁶⁾ Based on the average Euro exchange rate for 2017 being 7.4386DKK / €.

Distribution landing whole weight in 2017 (%)

Group	Length	Gear	Roundfish	Flatfish	Lobster and shrimp	Mackerel and herring	Other species	Reduction species ¹⁾	Entry-restricted ²⁾	Total landing whole weight (tonnes)
Commercial	VL0010m	DTS	35	59	5	0	1	0	0	275
		PGP	35	30	2	9	22	1	1	1,925
		PMP	31	63	4	1	1	0	0	1,092
	VL1012m	DRB	0	3	0	8	0	7	82	2,729
		DTS	32	21	3	0	0	44	0	1,559
		PGP	35	35	0	4	2	24	0	2,077
		PMP	28	35	2	0	2	33	0	2,037
	VL1218m	DRB	0	0	0	0	3	0	96	49,050
		DTS	14	13	6	0	1	65	0	31,889
		PGP	36	61	0	0	2	0	0	2,826
		PMP	39	30	8	1	2	20	0	4,545
		TBB	0	0	0	0	0	0	100	626
		TM ³⁾	0	0	0	18	0	82	0	25,385
	VL1824m	DTS	7	11	3	5	1	72	0	45,480
		PMP	6	16	3	0	2	73	0	13,978
		TBB	1	22	0	0	0	0	77	1,456
	VL2440m	DTS ⁴⁾	26	13	3	0	0	58	0	68,471
		PMP	77	23	0	0	1	0	0	4,337
VL40XXm	DTS	0	0	0	6	0	90	3	121,809	
	TM ⁵⁾	0	0	0	31	0	69	0	541,590	
Non-commercial	VL0010m	DTS	6	63	24	2	5	0	0	15
		PGP	25	39	2	7	25	1	0	1,685
		PMP	30	55	1	2	8	0	3	241
	VL1012m	DRB	0	100	0	0	0	0	0	1
		DTS	19	74	6	0	0	0	0	12
		PGP	51	19	0	0	30	0	0	123
		PMP	19	77	4	0	0	0	0	110
	1218m	DRB	0	0	0	0	0	0	100	245
		DTS	14	61	16	0	10	0	0	20
		PGP	12	4	0	0	84	0	0	33
		PMP	39	49	12	0	1	0	0	45

See Annex 1 for explanation of Gear Codes

Source: The Danish Fisheries Agency Vessel Register and Sales Notes Register 11th April 2018.

- Notes:
- 1) Species such as sand eel, blue whiting, sprat, horse mackerel and Norway pout.
 - 2) Species that can only be caught with a authorization, i.e. mussels, oysters, brown shrimps and shrimps in the waters around Greenland.
 - 3) For discretionary purposes, VL1824m TM has been included in VL1218m TM.
 - 4) For discretionary purposes, VL24XXm TBB has been included in VL2440m DTS.
 - 5) For discretionary purposes, VL40XXm PS has been included in VL40XXm TM.

Annex 4. Figures used to calculate the technical indicator

Length	Gear	Days at sea ¹⁾									
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
VL0010	DTS	770	478	400	594	580	654	705	612	628	519
	PGP	40,776	38,072	39,457	41,032	30,245	28,903	29,212	26,469	25,720	22,370
	PMP	-	-	-	-	6,060	5,557	5,093	4,914	5,386	5,058
VL1012	DRB	1,645	1,781	1,183	1,702	1,640	1,317	1,163	1,295	756	286
	DTS	889	1,108	950	-	1,070	1,042	1,132	1,157	1,280	1,461
	PGP	7,640	7,738	7,026	6,492	5,903	6,388	5,942	5,834	5,768	4,781
	PMP	2,681	2,703	2,808	3,121	3,415	2,691	2,828	3,059	3,378	2,831
VL1218	DRB	1,628	1,608	1,441	2,086	2,543	2,017	2,141	1,826	1,879	2,445
	DTS	21,510	21,827	21,010	19,677	16,829	16,606	16,659	14,812	15,523	14,231
	PGP	6,646	6,322	6,412	5,818	4,682	4,669	3,913	3,793	3,289	3,141
	PMP	5,004	4,947	4,775	4,796	5,009	4,280	4,702	4,118	4,127	3,907
	TBB	2,309	2,463	1,748	1,185	1,731	1,662	1,901	1,644	2,018	1,688
	TM	-	-	-	-	1,506	1,326	1,848	1,499	1,233	896
VL1824	DTS	11,783	12,250	11,741	11,123	10,554	9,693	9,655	9,039	8,157	7,223
	PMP	1,789	2,027	2,300	2,348	2,281	3,363	2,104	2,089	2,113	2,408
	TBB	2,314	2,417	2,546	2,105	2,788	2,772	2,764	2,550	3,067	2,917
VL2440	DTS	11,198	11,128	9,550	8,564	8,664	7,851	7,782	7,579	8,081	9,219
	PMP							1,233	1,097	1,157	987
VL40XX	DTS	5,483	5,628	6,025	5,321	1,440	2,762	2,073	2,005	1,728	1,733
	TM	-	-	-	-	2,496	2,607	2,538	3,439	3,609	3847

Source: The Danish Fisheries Agency Vessel Register and Sales Notes Register 11th April 2018

Call for fleet economic scientific data concerning 2008-2016, EC, Ref. Ares(2017)380592 -

Notes: ¹⁾ The days at sea is based on the Calendar Days method.

²⁾ Covers only active vessels.

³⁾ Based on the vessel with most observed days at sea within each year and fleet segment, using the 24 hours method.

Length	Gear	Number of vessels ²⁾									
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
VL0010	DTS	12	10	12	14	10	11	16	11	9	9
	PGP	1,041	1,000	1,024	1,012	855	824	928	883	905	856
	PMP	-	-	-	-	126	116	121	121	130	128
VL1012	DRB	30	32	24	25	21	24	19	16	11	6
	DTS	10	13	8	-	9	9	12	13	13	15
	PGP	66	67	65	56	50	56	54	50	53	50
	PMP	30	31	29	34	44	30	38	34	32	31
VL1218	DRB	33	34	30	27	27	25	26	24	28	34
	DTS	184	177	168	156	127	128	123	117	118	114
	PGP	59	57	45	48	35	37	31	29	26	25
	PMP	47	46	51	47	46	38	38	37	35	35
	TBB	16	14	11	11	11	11	11	12	11	10
	TM	-	-	-	-	16	14	15	13	10	6
VL1824	DTS	79	77	68	70	64	61	51	49	45	38
	PMP	16	15	16	15	12	16	10	10	11	11
	TBB	13	13	17	18	17	18	16	17	16	16
VL2440	DTS	51	46	42	39	38	34	34	30	34	37
	PMP							6	5	4	4
VL40XX	DTS	32	32	29	31	12	17	14	11	10	11
	TM	-	-	-	-	17	13	15	18	23	21

Source: The Danish Fisheries Agency Vessel Register and Sales Notes Register 11th April 2018

Call for fleet economic scientific data concerning 2008-2016, EC, Ref. Ares(2017)380592 -

Notes: ¹⁾ The days at sea is based on the Calendar Days method.

²⁾ Covers only active vessels.

³⁾ Based on the vessel with most observed days at sea within each year and fleet segment, using the 24 hours method.

Length	Gear	Maximum obs. days at sea ³⁾									
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
VL0010	DTS	154	81	97	140	108	130	154	190	221	206
	PGP	231	223	221	214	229	225	220	226	263	225
	PMP	215	190	178	183	189	210	200	175	160	186
VL1012	DRB	107	130	99	105	104	103	103	141	105	95
	DTS	198	162	143	149	147	158	164	161	160	186
	PGP	257	264	253	275	273	242	250	260	256	246
	PMP	166	178	166	163	162	161	176	210	215	187
VL1218	DRB	140	106	126	149	193	206	210	172	162	161
	DTS	234	280	298	278	282	276	279	295	296	275
	PGP	242	230	235	270	261	265	282	265	281	261
	PMP	199	195	196	196	291	321	285	250	242	272
	TBB	210	253	200	164	207	194	219	188	238	212
	TM	0	0	0	0	177	194	176	199	195	190
VL1824	DTS	320	306	345	340	345	339	342	339	342	339
	PMP	263	225	232	254	287	272	283	300	298	303
	TBB	204	218	190	176	217	213	222	208	237	227
VL2440	DTS	333	363	353	356	340	336	320	323	318	339
	PMP							285	351	333	317
VL40XX	DTS	223	254	232	268	190	219	195	198	365	285
	TM	-	-	-	-	219	303	262	282	263	300

Source: The Danish Fisheries Agency Vessel Register and Sales Notes Register 11th April 2018

Call for fleet economic scientific data concerning 2008-2016, EC, Ref. Ares(2017)380592 -

Notes: ¹⁾ The days at sea is based on the Calendar Days method.

²⁾ Covers only active vessels.

³⁾ Based on the vessel with most observed days at sea within each year and fleet segment, using the 24 hours method.

Annex 5. Development in effort in relation to the effort regime in the North Sea and then Baltic 2003, 2016 and 2017

North Sea, Skagerrak, Kattegat, Irish Sea and West of Scotland:

Number of days at sea and kilowatt days for Danish vessels 10 metres and above in the regulated area 2004, 2016 and 2017. Note: The total is the actual number of vessels.

	Kattegat									North Sea									Irish Sea			
	Days at sea			kW-days			No. Vessels			Days at sea			kW-days			No. Vessels			Days at sea	kW-days	No. Vessels	
	2003	2016	2017	2003	2016	2017	2003	2016	2017	2003	2016	2017	2003	2016	2017	2003	2016	2017	2003	2003	2003	
Total	19.652	8.339	7.716	3.969.539	1.601.977	1.546.129	366	147	143	67.172	31.020	26.789	21.830.602	11.553.283	10.509.051	690	291	282			915	1
TR1	809	215	72	132.857	32.678	11.267	96	30	17	17.394	13.905	12.033	6.988.875	5.626.623	5.269.594	296	140	130	.	.	.	.
TR2	14.957	7.741	7.366	3.020.289	1.520.279	1.487.226	253	127	129	26.292	9.234	7.798	7.788.045	2.445.042	2.170.067	369	135	131	.	.	.	.
TR3	2.049	89	45	629.240	15.845	9.629	71	4	4	5.276	1.387	979	3.089.609	1.891.457	1.561.634	135	21	23	2		915	1
BT1	.	.	.	.	.	.	.	.	.	1.371	265	232	1.342.965	322.044	339.901	12	3	2	.	.	.	.
BT2	.	.	.	.	.	.	.	.	.	114	25	16	98.897	37.353	21.871	11	1	2	.	.	.	.
GN1	1.675	225	172	169.471	20.129	27.111	75	10	11	15.276	4.043	3.850	2.286.893	731.135	702.906	213	67	62	.	.	.	.
GT1	150	70	61	14.713	13.046	10.896	9	4	5	957	2.161	1.882	156.152	499.631	443.079	32	30	30	.	.	.	.
LL1	13	.	.	2.968	.	.	2	.	.	492	.	.	79.166	.	.	31	.	.	.	.	.	.

	West of Scotland			Total									Change (%) in kW-days 2003-2017								
	Days at sea	kW-days	No. Vessels	Days at sea			kW-days			No. Vessels			Days at sea			kW-days			No. Vessels		
	2003	2003	2003	2003	2016	2017	2003	2016	2017	2003	2016	2017	Kattegat	North Sea	Total	Kattegat	North Sea	Total	Kattegat	North Sea	Total
Total	136	148.001	5	86.962	39.359	34.505	25.949.057	13.155.260	12.055.180	780	331	325	-61	-60	-60	-61	-52	-54	-61	-59	-58
TR1	.	.	.	18.203	14.120	12.105	7.121.732	5.659.301	5.280.861	358	152	142	-91	-31	-33	-92	-25	-26	-82	-56	-60
TR2	.	.	.	41.249	16.975	15.164	10.808.334	3.965.321	3.657.293	429	169	172	-51	-70	-63	-51	-72	-66	-49	-64	-60
TR3	136	148.001	5	7.463	1.476	1.024	3.867.765	1.907.301	1.571.263	174	24	27	-98	-81	-86	-98	-49	-59	-94	-83	-84
BT1	.	.	.	1.371	265	232	1.342.965	322.044	339.901	12	3	2	.	-83	-83	.	-75	-75	.	-83	-83
BT2	.	.	.	114	25	16	98.897	37.353	21.871	11	1	2	.	-86	-86	.	-78	-78	.	-82	-82
GN1	.	.	.	16.951	4.268	4.022	2.456.364	751.264	730.016	235	72	67	-90	-75	-76	-84	-69	-70	-85	-71	-71
GT1	.	.	.	1.107	2.231	1.943	170.865	512.677	453.975	37	33	34	-59	97	76	-26	184	166	-44	-6	-8
LL1	.	.	.	504	.	.	82.134	.	.	32	.	.	.	.	.	.	.	.	.	.	.

Source: The Danish Fishery Agency Effort Register per 25th April 2018

Annex 5. Continued...

	Kattegat						North Sea						Irish Sea	
	Days/Vessel			Kw-days/vessel			Days/Vessel			Kw-days/vessel			Days/Vessel	Kw-days/vessel
	2003	2016	2017	2003	2016	2017	2003	2016	2017	2003	2016	2017	2003	2003
Total	53,69	56,73	53,96	10.846	10.898	10.812	97,35	106,60	95,00	31.639	39.702	37.266	1,71	915
TR1	8,43	7,16	4,23	1.384	1.089	663	58,76	99,32	92,56	23.611	40.190	40.535	.	.
TR2	59,12	60,95	57,10	11.938	11.971	11.529	71,25	68,40	59,52	21.106	18.111	16.565	.	.
TR3	28,86	22,25	11,25	8.863	3.961	2.407	39,08	66,02	42,57	22.886	90.069	67.897	1,71	915
BT1	.	.	.	.	.	.	114,25	88,20	115,97	111.914	107.348	169.950	.	.
BT2	.	.	.	.	.	.	10,36	25,39	7,87	8.991	37.353	10.935	.	.
GN1	22,33	22,50	15,59	2.260	2.013	2.465	71,72	60,34	62,10	10.737	10.912	11.337	.	.
GT1	16,67	17,50	12,20	1.635	3.262	2.179	29,91	72,05	62,73	4.880	16.654	14.769	.	.
LL1	6,25	.	.	1.484	.	.	15,87	.	.	2.554	.	.	.	.

	West of Scotland		Total						Change (%) in 2003-2017	
	Days/Vessel	Kw-days/vessel	Days/Vessel			Kw-days/vessel			Days/Vessel	Kw-days/vessel
	2003	2003	2003	2016	2017	2003	2016	2017		
Total	27,16	29.600	111,49	118,91	106,17	33.268	39.744	37.093	-5	11
TR1	.	.	50,85	92,89	85,25	19.893	37.232	37.189	68	87
TR2	.	.	96,15	100,44	88,16	25.194	23.463	21.263	-8	-16
TR3	27,16	29.600	42,89	61,48	37,93	22.229	79.471	58.195	-12	162
BT1	.	.	114,25	88,20	115,97	111.914	107.348	169.950	2	52
BT2	.	.	10,36	25,39	7,87	8.991	37.353	10.935	-24	22
GN1	.	.	72,13	59,28	60,03	10.453	10.434	10.896	-17	4
GT1	.	.	29,92	67,62	57,14	4.618	15.536	13.352	91	189
LL1	.	.	15,76	.	.	2.567	.	.	.	.

Note: The total is the actual number of vessels.

Source: The Danish Fishery Agency Effort Register per 25th April 2018.

Annex 5. Continued...

The Baltic Sea:

Number of days at sea and kilowatt days for Danish vessels 8 metres and above in the regulated area 2003, 2016 and 2017.

	Days at sea			kW-days			No. Vessels			Change (%) in 2003-2017		
	2003	2016	2017	2003	2016	2017	2003	2016	2017	Days at sea	kW-days	No. Vessels
Total	35.571	16.996	13.719	5.802.616	2.254.857	1.833.031	479	226	189	-61,4	-68,4	-60,5
Western Baltic	27.535	13.654	10.662	4.364.018	1.530.996	1.162.413	464	217	177	-61,3	-73,4	-61,9
Eastern Baltic	8.036	3.342	3.057	1.438.598	723.861	670.618	188	55	44	-62,0	-53,4	-76,6

	Days/Vessel			Kw-days/vessel			Change (%) in 2003-2017	
	2003	2016	2017	2003	2016	2017	Days/Vessel	Kw-days/vessel
Total	74,26	75,2	72,59	12.114	9.977	9.699	-2,3	-19,9
Western Baltic	59,34	62,92	60,24	9.405	7.055	6.567	1,5	-30,2
Eastern Baltic	42,74	60,76	69,48	7.652	13.161	15.241	62,5	99,2

Source: The Danish Fishery Agency Effort Register per 25th April 2018.

Annex 6. Development in capacity in relation to cod recovery plan in the North Sea and the Baltic 2004, 2016 and 2017

North Sea, Skagerrak, Kattegat, Irish Sea and West of Scotland:

Capacity fluctuations for Danish vessels 10 metres and above in the regulated area 2003, 2016 and 2017.

	Total									Change (%) in 2003-2017	
	GT			kW			No. Vessels			GT	kW
	2003	2016	2017	2003	2016	2017	2003	2016	2017		
Total	63.255	36.819	41.751	204.356	99.358	109.744	780	331	325	-34	-46
TR1	29.117	15.846	14.833	99.810	44.645	40.315	358	152	142	-49	-60
TR2	39.461	14.208	14.429	159.359	57.979	58.086	429	169	172	-63	-64
TR3	34.513	14.461	19.025	88.264	26.945	37.816	174	24	27	-45	-57
BT1	2.488	682	541	7.891	1.870	1.669	12	3	2	-78	-79
BT2	2.434	498	541	7.672	1.471	1.669	11	1	2	-78	-78
GN1	7.763	2.782	2.580	37.615	11.329	10.626	235	72	67	-67	-72
GT1	1.707	1.782	1.814	6.264	6.084	6.178	37	33	34	6	-1
LL1	1.128	.	.	5.433	.	.	32	.	.	.	.

Source: The Danish Fishery Agency Effort Register per 25th April 2018.

The Baltic Sea:

Capacity fluctuations for Danish vessels 8 metres and above in the Baltic 2003, 2016 and 2017.

	GT			kW			No. Vessels			Change (%) in 2003-2017	
	2003	2016	2017	2003	2016	2017	2003	2016	2017	GT	kW
Total	18.165	6.015	4.496	83.675	29.993	24.296	479	226	189	-75	-71
Western Baltic	16.986	5.745	4.193	79.480	28.366	22.303	464	217	177	-75	-72
Eastern Baltic	8.505	2.601	2.262	38.374	10.737	8.868	188	55	44	-73	-77

Source: The Danish Fishery Agency Effort Register per 25th April 2018.