

Fleet Report of The Netherlands for the year 2021

Following Art 22 of Regulation 1380/2013.

Summary

The active fleet at 31-12-2021 was in total 100.915 GT en 248.312 KW.

The reserved capacity was in total 62,279 GT and 94.056 KW, hence the Dutch fleet has not and will not exceed the capacity ceiling (166.859 GT, 350.736 kW respectively, according to EU Regulation 1380/2013).

It will be noted that for both parameters the sum of the active fleet and the reserved capacity is less than the capacity ceiling. As the capacity ceiling initially was set at the active fleet at the introduction of the entry/exit-regime in 2003, this may raise a question on the 'missing capacity'. The explanation is that in national legislation a maximum period of 6 years is set within the capacity that has been taken out from the fleet has to be replaced by a new vessel. If the term is expired for a given amount of capacity, then the capacity will be skipped from the register and is withdrawn permanently from the Dutch fleet-capacity. This has happened in a few occasions.

As can as well be concluded from the reserved capacity given above, this amount comprises of a significant part of the Dutch fleet. As this is already the situation for over 10 years this may raise the question if the maximum period for reserved capacity is complied with. In that respect is has to be said that it is as well possible to 'switch' a capacity-unit from reserved unto an active vessel, vice versa, hence there is no expectation that the current reserved capacity will all be materialized into active fleet within 6 years from now.

Fleet at 31-12-2021

	Nr of vessels	KW active	reserved KW	GT active	reserved GT
MFL1	526	217.177	81.569	92.402	57.978
MFL2	193	31.135	12.025	8.513	4.021

Note: it can be derived from this table that the sum of the reserved capacity in this table (both parameters) is less than the total reserved capacity stated above; respectively 462 KW and 280 GT. This is due to some pending legal-administrative procedures for this capacity, which is expected to be resolved soon.

Indicators

All the indicators in this report have been calculated using the formulas in *Guidelines for analysis of the balance between fishing capacity and fishing opportunities according to Art. 22 of Regulation 1380/2013 of the European Parliament and the Council on the Common Fisheries Policy (COM(2014)545)* and updated in 2020 based on the methods used in the Balance STECF EWG 20-11 (see also Beukhof and Hamon 2020).

Content of the report

As a first part a short description of the national fleet in 2021 is presented. This is a description of the main processes and events regarding and impacting the respective fleet segments in 2021. Following this description the two Parts of this report are presented; Part I, the biological indicators and Part II, the economic indicators.

Short description of the national fleet

Fleet capacity

In 2021, the Dutch fishing fleet consisted of 720 registered vessels, the same as 2020 (720 vessels). Since 2013 the size of the fishing fleet fluctuated between 740 and 710 vessels. The mean age per vessel has slightly increased by the years from around 30 years (2013) to 34 years (2021) old. Of all registered vessels 74% (524) were active same as in 2020. However, employment decreased with 1% (to 1 878 total number of jobs) and +5% in FTE (1 586) between 2020-2021. The total vessel power of the fleet increased with 1% to a total of 248.400 kW) and total tonnage increased with 1% (to 101.000 GT) last year.

Fleet structure

In 2021, the number of fishing enterprises totalled 564, with the vast majority (82%), owning a single vessel. Around 18% of the enterprises owned two to five fishing vessels and only a single enterprise owned more than five vessels.

In 2021 the division in small- and large-scale activity for the active fleet was only slightly different from 2020. SSCF 38% (198 vessels) and 62% LSF (326 vessels). The number of vessels in the SSCF decreased (-12%) compared to the 2013-2020 period, but the share in total of the fleet is slowly growing the last few years. The number of pelagic freezer trawlers (TM40XX) is slightly higher than in 2020, eight vessels are left among the Dutch flag, one more than in 2020.

The mean length of SSCF was around 8 metres, where this was 28 metres for the LSF between the period 2013 to 2021. The largest share of the LSF consists of cutters targeting Common shrimp (max. 221 kW) and cutters targeting flat fish (max. 1 468 kW). Both cutter segments fish often with beam trawl (TBB). New building orders have stopped last year after some new building orders in the previous 5 years, which were modern vessels often combining demersal trawl and Danish/Scottish seines (DTS2440), so called fly shoot or purse seine. No orders were given for conventional beam trawl (TBB40XX) vessels which target species like plaice and/or common sole). Due to challenges for the fishing fleet most demersal trawling enterprises are not capable to invest into new, smaller, innovative and more sustainable fishing vessels. High fuel prices (due to the Russia-Ukraine war), decrease in landing volumes, spatial planning at the North Sea and lack of sufficient crew are the most important issues, but also lack of opportunities to innovate and funding of capital (to invest) frustrate the process and progress to renew the fleet.

Fishing activity and production

In 2021, the Dutch fleet spent a total of 49 365 days-at-sea (DaS), an increase of 1% from 2020. This minor increase of DaS can be clarified by the higher fishing effort from shrimp cutters. Average of effort (DaS) by the Dutch fleet fluctuates but is generally decreasing all over the years since 2013. The number of fishing days increased with 1% to a total of 43 211 from 2020-2021. The quantity of fuel consumption was estimated around 181 million litres, an increase of 2% from 2020. Total consumption of fuel increased by 8% in the last 2 years and the major factor causing this is the ban on pulse technique. This technique saved 40-50% fuel per day at sea per vessel (Oostenbrugge et al, 2018¹) compared to the conventional beam trawl technique. Fuel consumption per day at sea will increase further in the next few years due to this ban which became finally effective 1st July 2021. Vessels have switched from pulse to the traditional beam trawl technique again (with tickler chains) because of lack of other alternatives to catch sole in economic viable quantities.

Compared to 2020, the total live weight of landings decreased by 2% while landed value increased by 5% in 2021. The total live weight of fish and shellfish landed by the Dutch fleet in 2021 was 299 104 tonnes, with a value of EUR 360 million. The decrease in weight was caused by less landed volumes for multiple top species in 2021 compared to the previous year, of which the most important are:

- Mackerel (-21%) for the pelagic freezer trawlers.
- European plaice (-9%). Last year the volume for this specie was also lower than the year before (-12%) and it is still not clear for what reason(s) the landed volume was lower. According to ICES the biomass of plaice should be very safe and far above sustainable levels.

The average weight of landings per day at sea for the Dutch LSF was estimated around 5.8 tonne in 2021 and is on average decreasing the last five years. The main species of which landings dropped are European plaice and pelagic species (like herring and mackerel).

¹ Oostenbrugge et al, 2018. Economic aspects of pulse fisheries. *Wageningen Economic Research*, https://www.wur.nl/upload_mm/b/f/8/c5e084a5-250e-4f90-8bf1-2e92edb16030_Economische%20aspecten%20pulsvisserij.pdf

The demersal fleet targets mainly flatfish and common shrimp. In terms of economic value, the top landed flatfish species were in 2021:

1. Common sole (EUR 66 million)
2. Common shrimp (EUR 52 million)
3. European plaice (EUR 38 million)
4. Turbot (EUR 18 million)

The pelagic freezer trawler fleet (TM40XX) has landed the following pelagic species in 2021, ranked as most important in terms of economic value:

1. Atlantic herring (EUR 29 million)
2. Atlantic mackerel (EUR 20 million)
3. Blue whiting (=Poutassou) (EUR 19 million)
4. Atlantic horse mackerel (EUR 15 million)

Employment and average salaries

Around 67% of the jobs came from the LSF, the demersal cutter fleet, and only 18% from the SSCF and 15% from the pelagic trawler fleet. Expressed in FTE, the contribution of the small coastal fleet is very low: around 3% of total. The trend from 2013-2021 was downward for employment mainly due to decreasing number of vessels. In the demersal fleet segment net economic results were between EUR -36 million up to EUR +30 million. In 2016 there was a kind of renewed hope because of healthy profits at that time which resulted into new investments (e.g., some new vessels and fishing methods) and therefore (re)entering of crew into the fleet. From that year 2016 on the number of pelagic freezer trawlers was decreasing which clarifies again the drop of engaged crew in the fleet. The last few years there are increasingly concerns about the availability of qualified crew. Due to the ongoing decrease of economic performance by lower landing volumes more and more crew transfer to other maritime jobs such as offshore, inland shipping or even outside the maritime sector. The average labour costs (salary is different) for a crew member on a Dutch fishing vessel in 2021 was around EURO 67 000.

Part I

Biological indicators of the 2021 Dutch fleet

Two biological indicators (Sustainable Harvest Indicator (SHI) and Stock-at-risk (SAR) indicator) are used to assess whether the Dutch fleet is relying on overfished stocks, and/or is involved in causing a high biological risk to a depleted stock. The indicators in this chapter have been calculated using the formulas in *Guidelines for analysis of the balance between fishing capacity and fishing opportunities according to Art. 22 of Regulation 1380/2013 of the European Parliament and the Council on the Common Fisheries Policy (COM(2014)545)*. Calculations were updated in 2021 based on the methods used in the Balance STECF EWG 19-13 (see also Beukhof and Hamon 2020). Since 2020, *Nephrops* functional units (FU) have been included in the biological analysis. As the Dutch fleet mainly fishes upon FU5 and FU33, splitting factors were calculated based on the sum of the Dutch landings of these FUs as reported by ICES from 2015-2021.

The indicators were calculated for the eleven active fleet segments, as well as for aggregated fleet clusters. The interpretation of the indicators with regards to the balance is indicated in Table 1. For SHI, a trend is calculated following STECF-20-11 (Table 2).

Table 1. Interpretation of biological indicators.

Indicators	Out of balance	In balance
SHI	SHI > 1	SHI ≤ 1
SAR	SAR > 0	SAR = 0

Table 2. Interpretation of the trend in SHI.

Slope	Results
> 0.05	Increasing
< -0.05	Decreasing
-0.05 ≤ slope ≤ 0.05	No clear trend

Sustainable Harvest Indicator

The SHI was calculated based on the Dutch landing value per fleet segment in 2021. Values of F and F_{MSY} were taken from ICES stock advice. For segments where SHI is below 1 for the first time in 2021, the underlying F , F_{MSY} and landings value are presented. The main results are presented in Table 3 and Figure 1, and will be discussed below in detail.

Table 3. The SHI for the Dutch fleet in 2021, trend of in SHI presented as the slope of the trend, the number of stocks included in the analysis and the percentage of landings value for which stock assessment data was available. Clustered fleets are in grey, whereas the corresponding disaggregated STECF fleet segments are presented below each clustered fleet. No trend was calculated for the clustered fleets.

Fleet	SHI	Trend (2017-2021)	Number of stocks included	Proportion of landings value with stock assessment data available
Small scale and coastal	0.66		8	0.99
PG-VL0010	0.66	-0.07	8	0.82
PG-VL1012	0.93	-0.36	6	0.87
DFN-VL1824	-	-	5	0.09
TBB-VL0010	-	-	4	0.00
Small beam trawlers	0.98		15	0.92
TBB-VL1218	-	-	11	0.00
TBB-VL1824	-	-	16	0.12
Large beam trawlers	0.85		15	0.93
TBB-VL2440	0.86	-0.27	14	0.74
TBB-VL40XX	0.86	-0.25	15	0.90
Demersal trawlers	0.70		24	0.50
DTS-VL1824	-	-	13	0.37
DTS-VL2440	0.77	-0.07	24	0.44
Pelagic	0.98		15	0.82
TM-VL40XX	0.98	0.01	15	0.82

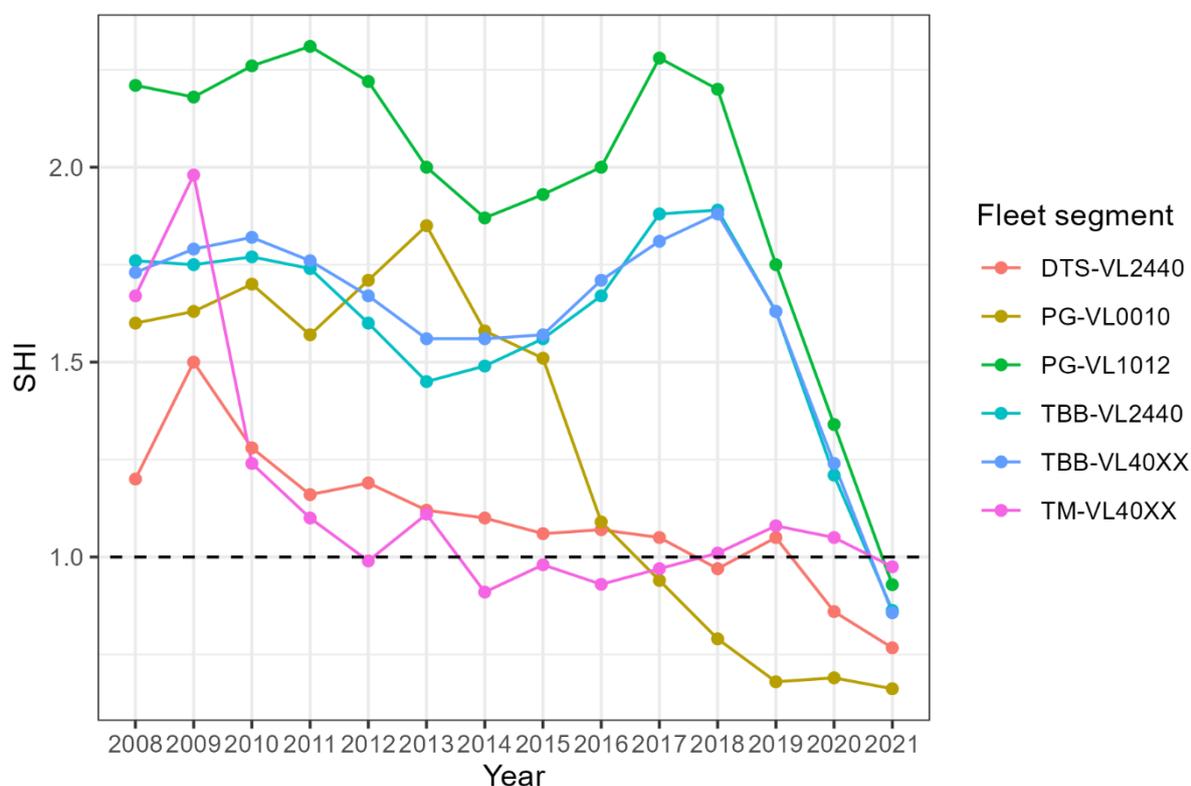


Figure 1. Trends in the Sustainable Harvest Indicator (SHI) from 2008 to 2021 for the fleet segments (demersal, pelagic, and large beam trawlers and passive gears) that were calculated in this report. Data from 2008-2020

were extracted from STECF-20-11, whereas the values of 2020 are from this fleet report. Values below or above 1 (dashed line) suggest that a fleet segment is in or out of balance, respectively.

Small scale and coastal fleet

For the drift and fixed nets segment (DFN-VL1824) and the small beam trawl segment (TBB-VL0010), the landings value of stocks with data on F and F_{MSY} was less than 40% of the total landings value for these segments, and therefore, no SHI was calculated (Table 3). This was mostly due to lack of assessment data for invertebrates, such as brown shrimp (*Crangon crangon*) and brown crab (*Cancer pagurus*). For the 0-10m and 10-12m passive gear segments the SHI for 2021 was calculated to be 0.66 and 0.93, respectively.

The SHI of the clustered fleet is 0.66 (Table 3), and mainly determined by high landings of North Sea sole ($F/F_{MSY} = 1.12$).

Both passive gear fleet segments show a strong decreasing trend in SHI (Table 3). For PG-VL1012, 2021 was the first year in which SHI was estimated to be smaller than or equal to 1. This is mostly due to a decrease in F/F_{MSY} of the most important stock of the fleet segment, North Sea sole. The SHI of PG-VL0010 has been below 1 since 2017 (Figure 1).

Table 4. F , F_{MSY} , ratio of F over F_{MSY} , landing value and cumulative proportion of stocks of the passive gears segment 10-12 m (PG-VL1012) in terms of total landing value in 2020. Stocks are listed from highest to lowest cumulative contribution.

Stock	F	F_{MSY}	F/F_{MSY}	Landing value (€)	Cumulative proportion
sol.27.4	0.21	0.21	1.00	212,371	0.786
bss.27.4bc7ad-h	0.11	0.17	0.65	56,436	0.994
tur.27.4	0.35	0.36	0.97	856	0.998
ple.27.420	0.08	0.15	0.53	454	0.999
cod.27.47d20	0.26	0.28	0.92	118	1
mac.27.nea	0.31	0.26	1.18	68	1

Small beam trawlers

The percentage of landings value for the two small beam trawler segments with stocks for which stock assessment data was available was very low, and therefore, no SHI was calculated (Table 3). These low percentages can be explained by the large amount of landings of brown shrimp and other invertebrates for which there is no stock assessment.

When combining the landings of the two fleet segments, the SHI in 2021 could be calculated and is 0.98 (Table 3). This is the second year the SHI of this combined fleet segment is below 1. This can be explained by the continued estimated decrease in F/F_{MSY} of sole in the North Sea (~ 85% of the fleet segment's value).

Large beam trawlers

The SHI for the large beam trawler segments in 2021 is 0.86 for both the 24-40 m segment and the >40 m segment (Table 3). The stocks that contributed together at least 85% to the total landing value of both segments are sole (sol.27.4) and plaice (ple.27.420) (**Fout! Verwijzingsbron niet gevonden.**, Table 6).

The SHI of the clustered fleet is 0.86 (Table 3), and like the fleet segments, is determined mainly by North Sea sole and plaice in the North Sea and Skagerrak.

The SHI of both fleet segments as well as the clustered fleet show a strong decreasing trend and have dropped below 1 for the first time throughout the time series in 2021 (Figure 1, Table 3). This is most likely caused by the decrease in F/F_{MSY} of both plaice ($F/F_{MSY} = 0.53$) and sole ($F/F_{MSY} = 1.00$).

Table 5. F , F_{MSY} , ratio of F over F_{MSY} , landing value and cumulative proportion of stocks of the large beam trawler segment between 24-40m (TBB-VL2440) in terms of total landing value in 2021. Stocks are listed from highest to lowest cumulative contribution.

Stock	F	F_{MSY}	F/F_{MSY}	Landing value (€)	Cumulative proportion
sol.27.4	0.21	0.21	1.00	8,466,151	0.572
ple.27.420	0.08	0.15	0.53	4,024,640	0.844
tur.27.4	0.35	0.36	0.97	1,963,079	0.977
sol.27.20-24	0.20	0.26	0.75	89,741	0.983
cod.27.47d20	0.26	0.28	0.92	71,362	0.988
whg.27.47d	0.16	0.39	0.41	65,271	0.992
bss.27.4bc7ad-h	0.11	0.17	0.65	54,022	0.996
nep.fu.8	10.81	16.30	0.66	41,760	0.999
wit.27.3a47d	0.29	0.15	1.97	7,257	0.999
hke.27.3a46-8abd	0.18	0.24	0.77	5,839	1
had.27.46a20	0.21	0.24	0.88	5,135	1
mac.27.nea	0.31	0.26	1.18	930	1
nep.fu.6	11.90	8.12	1.47	855	1
pok.27.3a46	0.39	0.36	1.07	157	1

Table 6. F , F_{MSY} , ratio of F over F_{MSY} , landing value and cumulative proportion of stocks of the large beam trawler segment >40m (TBB-VL40XX) in terms of total landing value in 2021. Stocks are listed from highest to lowest cumulative contribution.

Stock	F	F_{MSY}	F/F_{MSY}	Landing value (€)	Cumulative proportion
sol.27.4	0.21	0.21	1.00	49.566.455	0.557
ple.27.420	0.08	0.15	0.53	25.911.717	0.848
tur.27.4	0.35	0.36	0.97	11.799.892	0.980
cod.27.47d20	0.26	0.28	0.92	606.798	0.987
sol.27.20-24	0.20	0.26	0.75	439.452	0.992
bss.27.4bc7ad-h	0.11	0.17	0.65	266.860	0.995
whg.27.47d	0.16	0.39	0.41	105.403	0.996
wit.27.3a47d	0.29	0.15	1.97	82.553	0.997
had.27.46a20	0.21	0.24	0.88	81.839	0.998
nep.fu.8	10.81	16.30	0.66	66.077	0.999
hke.27.3a46-8abd	0.18	0.24	0.77	62.535	1
pok.27.3a46	0.39	0.36	1.07	34.493	1
nep.fu.6	11.90	8.12	1.47	1.353	1
mac.27.nea	0.31	0.26	1.18	1.024	1
nep.fu.3-4	5.09	7.90	0.64	71	1

Demersal trawlers

For the demersal trawler segment with vessel length 24-40m, SHI was 0.77 in 2021. For the demersal trawler segment with vessel length 18-24m, the number of stocks for which stock assessment data was available was too low to assess SHI (Table 3).

The SHI of the clustered fleet in 2021 was 0.70, a clear decrease from 2020 (0.99).

The SHI for the 24-40m segment shows a decreasing trend (Table 3) and has dropped below 1 since 2020 due to decreased F/F_{MSY} for plaice ($F/F_{MSY} = 0.53, 0.71$ in 2020), cod ($F/F_{MSY} = 0.92, 1.6$ in 2020) and whiting ($F/F_{MSY} = 0.41, 0.50$ in 2020), and a stable F/F_{MSY} for North Sea turbot (0.97). Together with mackerel, for which F/F_{MSY} has increased since 2020 from 0.95 to 1.18, and Norway lobster in FU8 for which F/F_{MSY} has increased since 2020 from 0.37 to 0.66, these stocks make up ~90% of the segment's value (Table).

Table 7. F/F_{MSY} , ratio of F over F_{MSY} , landing value and cumulative proportion of stocks of demersal trawler segment 24-40m (DTS-VL2440) in terms of total landing value in 2021. Stocks are listed from highest to lowest cumulative contribution.

Stock	F	F_{MSY}	F/F_{MSY}	Landing value (€)	Cumulative proportion
ple.27.420	0.08	0.15	0.53	5,223,615	0.315
nep.fu.8	10.81	16.30	0.66	3,509,629	0.526
mac.27.nea	0.31	0.26	1.18	2,368,887	0.669
tur.27.4	0.35	0.36	0.97	1,914,573	0.784
cod.27.47d20	0.26	0.28	0.92	1,026,270	0.846
whg.27.47d	0.16	0.39	0.41	728,902	0.890
sol.27.4	0.21	0.21	1.00	641,683	0.929
bss.27.4bc7ad-h	0.11	0.17	0.65	513,066	0.960
hke.27.3a46-8abd	0.18	0.24	0.77	189,162	0.971
ple.27.7d	0.19	0.16	1.19	107,195	0.978
whg.27.7b-ce-k	0.56	0.38	1.50	78,353	0.982
nep.fu.6	11.90	8.12	1.47	71,873	0.987
pok.27.3a46	0.39	0.36	1.07	60,068	0.990
wit.27.3a47d	0.29	0.15	1.97	55,106	0.994
had.27.46a20	0.21	0.24	0.88	48,854	0.996
had.27.7b-k	0.44	0.35	1.25	25,714	0.998
hom.27.2a4a5b6a7a-ce-k8	0.09	0.07	1.15	16,606	0.999
mon.27.78abd	0.15	0.19	0.80	6,671	0.999
sol.27.20-24	0.20	0.26	0.75	6,271	1
her.27.3a47d	0.20	0.31	0.64	1,368	1
meg.27.7b-k8abd	0.18	0.23	0.77	854	1
sol.27.7d	0.22	0.23	0.96	748	1
cod.27.7e-k	1.05	0.29	3.61	402	1
sol.27.7e	0.29	0.29	0.99	30	1

Pelagic fleet

The SHI for the pelagic fleet segment in 2020 is 0.98 (Table 3). The SHI has been around 1 since 2014 and shows no significant trend over time (Figure 1).

Splitting of the landings data of herring in ICES sub-division 4a over the two stocks in this area was done by assigning all catches to North Sea herring (her.27.3a47d), as the Dutch pelagic fleet has not been catching any Norwegian spring spawning herring (her.27.1-24a514a) in this area in recent years. Note that this is different from the splitting factors from Annex IV in STECF-20-11.

Stock-at-risk indicator

The stock-at-risk (SAR) indicator was calculated based on the Dutch landings (in weight) per fleet segment and clustered fleet in 2021 and the total landings per stock as estimated by ICES. Values of SSB and B_{lim} were taken from ICES stock advice. For ICES category 3 stocks with a production model (e.g. SPiCT) the B/B_{MSY} estimate was used to assess criterion A (whether stock is being below B_{lim}). The main results are presented in Table 8, and are discussed in more detail below.

Table 8. The stock-at-risk (SAR) indicator for the Dutch fleet segments in 2020, and the corresponding stocks at risk. Stock and SAR-value in parentheses suggest another stock at risk, but it is argued in the text why this stock should be included in the SAR calculation. Clustered fleets are in grey, whereas the corresponding disaggregated STECF fleet segments are presented below each clustered fleet.

Fleet	SAR	Stocks at risk
Small scale and coastal	0	
PG-VL0010	0	
PG-VL1012	0	
DFN-VL1824	0	
TBB-VL0010	0	
Small beam trawlers	0	
TBB-VL1218	0	
TBB-VL1824	0	
Large beam trawlers	0	
TBB-VL2440	0	
TBB-VL40XX	0	
Demersal trawlers	0	
DTS-VL1824	0	
DTS-VL2440	0	
Pelagic	1	hom.27.2a4a5b6a7a-ce-k8
TM-VL40XX	1	hom.27.2a4a5b6a7a-ce-k8

Small scale and coastal fleet

No stocks at risk were identified for any of the two small scale and coastal segments and the clustered fleet (Table 8).

Small beam trawlers

No stocks at risk were identified for the two small beam trawler segments and the clustered fleet (Table 8).

Large beam trawlers

No stocks at risk were identified for the two large beam trawler segments and the clustered fleet (Table 8).

Demersal trawlers

No stocks at risk were identified for the two demersal trawler segments and the clustered fleet (Table 8).

Pelagic fleet

The number of stocks at risk for the pelagic fleet in 2021 is assessed to be 1 (Table), namely horse mackerel in the Northeast Atlantic (hom.27.2a4a5b6a7a-ce-k8). The landings of the pelagic fleet segment comprised more than 10% of the total landings of the stock (criterion 2). The SSB of horse mackerel in the Northeast Atlantic is estimated to be below B_{lim} (criterion A).

Summary and comments to the biological indicators

According to the thresholds and criteria in the 2014 Commission Guidelines, all segments for which SHI could be calculated are in balance according to the SHI. According to the SAR indicator, 1 segment is out of balance: TM-VL40XX. After several consecutive years of decreasing SHI trends, all SHI values are now below 1. For five segments, the SHI could not be calculated. The SAR indicator of these segments was zero, suggesting that these segments are in balance according to the SAR indicator. Furthermore, all SHI values for clustered fleets were below 1, suggesting these segments were in balance.

In the 2020 Dutch fleet report, it was reported that four fleet segments were out of balance with regards to the SAR indicator. Three of these segments are no longer classified as out of balance, because the relative fishing mortality on North Sea sole has decreased to sustainable levels ($F/F_{MSY} = 1.00$). Although SHI values differ between the 2022 STECF report and the 2022 Dutch fleet report, the overall (decreasing) trends are the same. The discrepancy between the Dutch and STECF report mostly comes from using different numbers of stocks in the analyses (see also Beukhof & Hamon, 2020).

For the first time this year in the Dutch fleet report, the threshold for assessed stocks to calculate an SHI value was 40%, rather than 60% as was previously used. This is done to minimize the discrepancies between the report by the STECF on the 2021 biological indicators for the Dutch fleet, as the STECF maintains the threshold of 40% in their analyses, per the criteria in the 2014 Commission guidelines.

Uncertainties around the biological indicators

The estimates of F and F_{MSY} depend on the quality of the assessment. Many of the stock assessments used to define the F/F_{MSY} ratio are uncertain, and some are even highly uncertain, such as for western horse mackerel and North Sea cod. This affects the calculation of SHI, also acknowledged by STECF-20-11. Longer trends in SHI values are therefore useful to interpret any potential fleet over-capacity.

Fisheries advice aims to fish stocks at or below F_{MSY} . Given the uncertain nature of estimation of stock size and exploitation rate, it is to be expected that, looking back, F exceeds F_{MSY} in some years while management was in line with F_{MSY} advice. Longer-term perspectives on SHI are indicative of constant over- or under-exploitation of target species.

Stock assessments regularly go through benchmarks, where the perception of the stock and its reference points can change. It may therefore happen that advice given in the past and TACs set based on that advice were, looking back, do not follow the MSY approach. This can lead to situations where before the benchmark, indicators are calculated to be pointing towards balance between fleet capacity and fishing opportunities, whereas calculating the indicators after the benchmark, indicators point towards fleets being out of balance. By making use of the most recent stock assessment available when calculating the indicators, the indicators do not consider the knowledge on the stock that managers had at the time the TACs were set. A revision of the indicators and their calculation could take this issue into account.

Part II

Economic and social indicators for the Dutch fleet 2021

This report is based on the economic data submitted to STECF in 2023. The economic data go up to 2021 and those are completed with the fleet and transversal data of 2022 where available. In 2021 the Dutch fishing fleet consisted of 720 vessels (710 vessels in 2022) which were allowed to fish commercially in marine waters. From these vessels 524 were considered active based on logbook information (see Table 1). The active fleet is split into several fleet sections, the small coastal vessels, the small and large beamtrawlers (<24m or >24m), the demersal trawlers and the pelagic trawlers. Except for the pelagic trawlers, those parts of the fleet are themselves made of several segments defined by the data collection framework (DCF) and used by STECF. Because of data trustworthiness and the minor economic importance, the small coastal fleet was previously excluded from the economic part of the fleet report. The fleet segments which include the main fleets (commercially active cutters and trawlers grossing more than 50.000 euro) consisted of 311 vessels and cumulated about 99% of the value of landings in 2021.

Since 2017, three small scale segments have been pooled with others because the number of vessels fell below the threshold of 10 vessels used to protect confidentiality of data. The DFN_VL1218 was clustered with DFN_VL1824, DTS_VL0010 with TBB_VL0010 and DRB_VL2440 with TBB_VL1218 in the small beamtrawler fleet. Those choices were made to pool the fleets with fleets with as similar cost structures as possible.

Table 1: Number of vessels per fleet (in grey) and disaggregated by STECF segment.

Fleet	2015	2016	2017	2018	2019	2020	2021	2022
Small coastal	232	231	219	210	206	221	214	211
DFN_VL1218	8	8	-	-	-	-	-	-
DFN_VL1824	7	7	13	17	17	15	16	14
DRB_VL2440	8	8	-	-	-	-	-	-
DTS_VL0010	10	12	-	-	-	-	-	-
PG_VL0010	165	162	161	157	158	171	161	156
PG_VL1012	17	19	18	18	17	20	20	19
TBB_VL0010	17	15	27	18	14	15	17	22
Small beamtrawlers	174	174	178	184	171	173	172	174
TBB_VL1218	17	19	23	23	23	19	23	27
TBB_VL1824	157	155	155	161	148	154	149	147
Large beamtrawlers	77	83	85	88	86	87	87	78
TBB_VL2440	24	28	27	28	25	28	27	21
TBB_VL40XX	53	55	58	60	61	59	60	57
Demersal trawlers	36	32	35	33	49	44	43	37
DTS_VL1824	12	9	8	5	17	10	7	6
DTS_VL2440	24	23	27	28	32	34	36	31
Pelagic trawlers	7	7	8	7	6	6	8	8
TM_VL40XX	7	7	8	7	6	6	8	8

All the indicators in this chapter have been calculated using the formulas in *Guidelines for analysis of the balance between fishing capacity and fishing opportunities according to Art. 22 of Regulation 1380/2013 of the European Parliament and the Council on the Common Fisheries Policy (COM(2014)545)* and updated in 2020 based on the methods used in the Balance STECF EWG 19-13 (see also Beukhof and Hamon 2020). Changes to the method used led to small changes in the indicator value compared to previous years reports. Those changes included i) using real values adjusted for inflation using the consumer price index, ii) opportunity costs of capital are calculated using real interest rate and iii) the return on investment (ROI) should be compared to the 5 year average interest rate. The real interest rate used to calculate opportunity costs of capital and the 5 years average low risk long term interest rate are shown below in table 2.

Table 2: Inflation, interest rate, real interest rate, 5 year average low risk long term interest rate and consumer price index for the Netherlands. sources: Eurostat and ECB

indicator	2015	2016	2017	2018	2019	2020	2021
inflation	0.20	0.10	1.30	1.60	2.70	1.10	2.83
interest rate	0.69	0.29	0.52	0.58	0.01	-0.38	-0.33
real interest rate	0.49	0.19	-0.77	-1.01	-2.62	-1.46	-3.07
5yr average interest rate	1.80	1.27	0.98	0.71	0.42	0.20	0.08
consumer price index	0.93	0.94	0.95	0.96	0.99	1.00	1.03

Below the results for specific segments are discussed in more detail.

Economic indicators

The economic indicators are calculated in real terms with 2020 as base year (see Table 2 for the consumer index price used for the calculations), this is in line with STECF practice and Beukhof and Hamon (2020). Six socio-economic indicators are given in this section. This is one more than in previous years as the RoFTA (Return on Fixed Tangible Assets) was added given that the lack of right value estimates since 2019 negatively impacts the usefulness of the ROI. The interpretation of the ROI (return on investment), the RoFTA, CR/BER (current revenue over break even revenue) and NPM (net profit margin) following the STECF guidelines are found in Table 3.

Table 3: Interpretation of economic indicators.

Indicators	Out of balance	Not sufficiently profitable	In balance
ROI*	ROI < 0	0 <= ROI < 5yr average interest rate	ROI > 5yr average interest rate
RoFTA	RoFTA < 0	0 <= RoFTA < 5yr average interest rate	RoFTA > 5yr average interest rate
CR/BER	CR/BER < 1	-	CR/BER > 1
NPM	NPM <= 0	0 <= NPM < 10	NPM >= 10

*due to an inactive fishing right market, the value of rights could not be calculated since 2019, ROI values in 2019, 2020 and 2021 are likely overestimated and cannot be compared to those of earlier years

Total fleet

The economic indicators of the Dutch fleet demonstrate that the situation of the fleet is degrading as three of the six indicators show a significantly decreasing trend over the last 5 years (RoFTA, NPM and GVA). The (still) positive results in 2021 are mainly due to the pelagic fleet which had a good year. For other fleets the situation is already out of balance as seen in the following sections. The social indicators of the total fleet are still positive with the average crew costs per full time equivalent (FTE) above the average Dutch gross salary² and a gross value added (GVA) of more than 151 million euro in 2021. The positive return on Fixed

² Average Dutch labour cost was around EUR 64.3 k/year in 2021

<https://opendata.cbs.nl/statline/#/CBS/nl/dataset/84163NED/table?dl=8E720>

Tangible Assets (RoFTA) well above the 5 year average interest rate suggest the long-term viability of the fleet.

In 2021, the supply of North Sea fish and shrimps decreased again. Landings of plaice, sole and shrimp, which are important to the Netherlands, fell by 11%, 7% and 10% respectively. Total volume of landings decreased by 2%. Fish prices in 2021 were higher than the year before. After the 2020 corona year, the demand for fish picked up again and total value of landings increased by 8%.

The costs for cutter fishing increased in 2021, mainly due to the increase in the price of fuel. The higher cost of fuel is caused by an increase in the oil price due to a supply shortage. With the global economy recovering from the corona crisis, the demand for oil increased rapidly. In addition, in 2021, the last flatfish fishers who were allowed to use pulse technology temporarily also were forced to revert to the beam trawl, sumwing and/or twin rig technique, which uses more fuel than pulse. Pulse licenses for energy-efficient pulse fishing have been withdrawn in phases since June 2019 and the last license expired mid 2021. Now that all licenses for pulse fishing have been withdrawn, the share of fuel costs in total revenue has increased significantly again, in addition to the higher oil price.

As a result of the increased (fuel) costs, the wages of the crew fleet decreased as the crew receives a fixed share of the net revenues, the revenues from the fish minus certain costs, including the much higher fuel costs.

In 2020 owners of fishing vessels could apply for a financial compensation for not sailing for a maximum time period of 5 weeks. This subsidy was not included in the income for the calculation of the economic indicators. Additionally business owners were compensated in 2021 for a total amount of about € 4.5 million.

Table 4: Economic and social indicators total Dutch fleet. ROI: Return on Investment in %, RoFTA: Return on Fixed Tangible Assets in %, CR/BER: current revenue over break-even revenue, NPM: net profit margin in %, Crew Costs/FTE: crew costs per full time equivalent in thousand euro and GVA: gross value added in million euro. Trend calculated over the last 5 years of data, '-' indicates a non-significant trend at 5%

Indicators	2015	2016	2017	2018	2019	2020	2021	trend
ROI	5.40	15.30	11.70	15.10	10.80	10.20	9.50*	-
RoFTA	13.60	39.80	28.50	27.00	11.20	10.60	10.00	decreasing
CR/BER	1.44	2.11	1.82	1.83	1.42	1.35	1.43	-
NPM	8.90	20.40	15.80	14.60	7.90	7.60	8.00	decreasing
Crew Costs/FTE	76.10	98.60	83.80	83.50	65.80	69.20	67.00	-
GVA	197.20	303.60	248.60	234.40	157.20	153.30	151.10	decreasing

*due to an inactive fishing right market, the value of rights could not be calculated since 2019, ROI values in 2019, 2020 and 2021 are likely overestimated and cannot be compared to those of earlier years

Small coastal fleets

This section was added in 2020 to allow comparison with the balance report of STECF. The economic data for these fleets are collected using questionnaires and the quality of the response is highly variable between years. In 2021, 214 vessels were operating in the small coastal fisheries. They are a heterogeneous group of vessels, including mainly smaller vessels. This section consists of vessels using active gears with an annual fishing revenue lower than EUR 50 k, vessels using passive gears and vessels fishing for shellfish (because of lack of data and the similarity in cost structure, the dredgers DRB 24-40 have been pooled with the small beamtrawl fleet TBB 12-18 since 2017). In 2021, the small coastal fleet represented about 1% of the total Dutch value of landings.

The small scale fleet targets a mix of species among which seabass is the most important (52% of the value of landings in 2021, 48% in 2022). Other important species including edible crab and sole (respectively 17% and 9% in 2021) are more variable.

Two out of the four small coastal fleets (PG_VL0010 and PG_VL1012) are in balance. The DFN_VL1824 fleet shows insufficient ROI/RoFTA while the TBB_VL0010 fleet displays out of balance economic indicators for all indicators. The crew costs per FTE show extremely low values over the years for most fleet segments except for the DFN_VL1824 (much lower than the average Dutch salary), this is likely due to the poor quality of the data.

It should be noted that the high year-to-year and between segments variability is likely due to the quality of the data rather than real changes in the fleet, as response rates on the questionnaire for the economic data have been low during the last years. Given the quality of the data of these segments, trends would be hard to detect and any trends is more likely an artifact from the data.

Table 5: Economic and social indicators small coastal fleet (in grey) and for all the STECF segments in that cluster. ROI: Return on Investment in %, RoFTA: Return on Fixed Tangible Assets in %, CR/BER: current revenue over break-even revenue, NPM: net profit margin in %, Crew Costs/FTE: crew costs per full time equivalent in thousand euro and GVA: gross value added in million euro. Trend calculated over the last 5 years of data, '-' indicates a non-

significant trend at 5% . Missing values from 2017 for some segments are due to the aggregation of the fleets with less than 10 vessels with larger fleets.

Fleet	Indicators	2015	2016	2017	2018	2019	2020	2021	trend
Small coastal	ROI	17.40	-30.50	4.40	11.20	17.90	-0.90	-0.10*	-
DFN_VL1218	ROI	1.70	1.30	-	-	-	-	-*	-
DFN_VL1824	ROI	9.50	-21.20	3.20	5.50	37.50	-1.10	-1.10*	-
DRB_VL2440	ROI	104.80	-115.50	-	-	-	-	-*	-
DTS_VL0010	ROI	-3.10	-8.10	-	-	-	-	-*	-
PG_VL0010	ROI	13.70	9.20	7.00	19.50	17.90	0.90	3.10*	-
PG_VL1012	ROI	11.80	7.00	6.30	20.40	17.90	0.70	3.80*	-
TBB_VL0010	ROI	15.40	-5.70	-0.20	-4.60	-8.80	-75.30	-15.20*	-
Small coastal	RoFTA	23.80	-17.90	6.60	14.40	18.40	-0.70	0.50	-
DFN_VL1218	RoFTA	17.90	12.00	-	-	-	-	-	-
DFN_VL1824	RoFTA	8.60	-19.60	14.50	10.10	37.30	-0.70	-0.50	-
DRB_VL2440	RoFTA	72.10	-51.70	-	-	-	-	-	-
DTS_VL0010	RoFTA	-8.80	-9.40	-	-	-	-	-	-
PG_VL0010	RoFTA	17.90	12.00	8.00	21.70	18.60	1.10	3.70	-
PG_VL1012	RoFTA	17.90	12.00	8.00	21.70	18.60	0.80	4.30	-
TBB_VL0010	RoFTA	22.00	-8.50	-0.40	-5.40	-9.00	-75.60	-15.00	-
Small coastal	CR/BER	3.25	-0.20	1.70	2.50	2.98	1.09	1.45	-
DFN_VL1218	CR/BER	2.65	2.17	-	-	-	-	-	-
DFN_VL1824	CR/BER	1.83	-0.10	2.73	2.22	6.27	1.10	1.42	-
DRB_VL2440	CR/BER	9.02	-1.43	-	-	-	-	-	-
DTS_VL0010	CR/BER	0.18	0.09	-	-	-	-	-	-
PG_VL0010	CR/BER	2.65	2.17	1.73	2.91	2.80	1.32	1.88	-
PG_VL1012	CR/BER	2.65	2.17	1.73	2.91	2.80	1.25	1.96	-
TBB_VL0010	CR/BER	2.90	0.18	1.05	0.31	0.16	0.07	0.09	-
Small coastal	NPM	25.40	-29.90	22.40	32.40	33.20	3.90	13.00	-
DFN_VL1218	NPM	37.80	31.20	-	-	-	-	-	-
DFN_VL1824	NPM	10.50	-115.60	36.00	25.00	41.20	4.50	11.50	-
DRB_VL2440	NPM	18.10	-42.10	-	-	-	-	-	-
DTS_VL0010	NPM	-249.20	-81.00	-	-	-	-	-	-
PG_VL0010	NPM	37.80	31.20	22.70	37.60	32.40	11.40	20.90	-
PG_VL1012	NPM	37.80	31.20	22.70	37.60	32.40	8.60	21.90	-
TBB_VL0010	NPM	36.20	-37.40	2.90	-72.40	-171.30	-313.00	-104.10	-

Fleet	Indicators	2015	2016	2017	2018	2019	2020	2021	trend
Small coastal	Crew Costs/FTE	31.20	97.40	12.80	19.90	12.30	24.30	18.90	-
DFN_VL1218	Crew Costs/FTE	7.90	7.20	-	-	-	-	-	-
DFN_VL1824	Crew Costs/FTE	34.90	81.80	15.10	45.40	38.40	74.10	62.80	-
DRB_VL2440	Crew Costs/FTE	132.60	877.00	-	-	-	-	-	-
DTS_VL0010	Crew Costs/FTE	2.70	32.60	-	-	-	-	-	-
PG_VL0010	Crew Costs/FTE	7.90	7.20	11.70	16.50	8.80	19.40	14.60	-
PG_VL1012	Crew Costs/FTE	7.90	7.20	11.70	16.50	8.80	12.90	14.60	-
TBB_VL0010	Crew Costs/FTE	42.30	63.60	30.00	17.20	18.10	32.50	23.70	-
Small coastal	GVA	8.80	9.50	3.20	5.60	3.70	2.60	2.40	-
DFN_VL1218	GVA	0.20	0.10	-	-	-	-	-	-
DFN_VL1824	GVA	0.30	0.20	0.40	1.20	1.10	0.90	0.60	-
DRB_VL2440	GVA	4.60	6.00	-	-	-	-	-	-
DTS_VL0010	GVA	0.00	0.20	-	-	-	-	-	-
PG_VL0010	GVA	3.10	2.20	2.20	3.90	2.30	1.70	1.60	-
PG_VL1012	GVA	0.40	0.30	0.20	0.40	0.30	0.20	0.20	-
TBB_VL0010	GVA	0.30	0.50	0.30	0.00	-0.00	-0.20	-0.00	-

*due to an inactive fishing right market, the value of rights could not be calculated since 2019, ROI values in 2019, 2020 and 2021 are likely overestimated and cannot be compared to those of earlier years

Beamtrawlers less than 24 meters

In 2021 the fleet segment beamtrawlers less than 24 meters consists of 172 vessels, mainly fishing for shrimp, surf clams and razor clams (representing respectively 57% , 16% and 16% of the fishing revenue in 2021). The return on investment for the small beamtrawlers was high until 2018 with extreme values in 2016 because of low fuel prices, high landings of fish and high prices for shrimp. The ratio of current revenue over break-even revenue and net profit margin show similar patterns indicating a segment viable until 2018.

The return on Fixed Tangible Assets shows an improvement in 2021 compared to 2020. The improvement is entirely due to the 12-18m part of the segment, as the 18-24m shows deterioration of its performance and remains out of balance.

The consequences of increased revenues and decreased costs of fuel in particular are also reflected in the increased results of the indicators current revenue over break-even revenue and net profit margin. Due to the increased income and lower fuel prices, the crew costs, depending on these values, have also increased compared to 2019. This year, too, the average crew cost per FTE is higher than the Dutch average wage for the 12-18m but lower for the 18-24m.

The GVA of the small beamtrawlers is positive, indicating that the fleet has a value for society, in 2021 it still represented 28% of the total GVA for the Dutch fleet.

Over the last 5 years, no significant trend was identified for either the TBB_VL1218 and TBB_VL1824.

The vessels with a length of 18-24 meters in this segment were more affected by the increased fuel price in 2021 than the vessels with a length of 12-18 meters. The fuel price in 2021 averaged more than 45 euro cents per litre, which is 32% higher than in 2020.

While the smaller vessels mainly focus on catching shrimp, the larger units also catch fish and nephrops, which entails higher fuel consumption. This was certainly the case when a switch was made from pulse fishing to beam trawling as a result of the pulse ban.

The supply of shrimp in 2021 was 10% lower than in 2020. The price for a kilogram of shrimp rose to Euro 3.93/kg in 2021, in 2020 this was Euro 3.43/kg. The stated prices are live weight prices, excluding the supplied sifting.

The supply of Norway lobsters increased sharply (+39%) after the dip in 2020. This species is mostly targeted by vessels of around 24 meters.

Table 6: Economic and social indicators small beam trawl fleet (in grey) and from the STECF segments in that cluster. ROI: Return on Investment in %, RoFTA: Return on Fixed Tangible Assets in %, CR/BER: current revenue over break-even revenue, NPM: net profit margin in %, Crew Costs/FTE: crew costs per full time equivalent in thousand euro and GVA: gross value added in million euro. Trend calculated over the last 5 years of data, ‘-’ indicates a non-significant trend at 5%

Fleet	Indicators	2015	2016	2017	2018	2019	2020	2021	trend
Small beamtrawlers	ROI	9.80	44.60	18.60	23.70	-1.70	8.40	11.70*	-
TBB_VL1218	ROI	-8.30	10.10	90.50	29.20	139.40	38.90	45.80*	-
TBB_VL1824	ROI	10.50	46.50	15.10	22.50	-19.40	-5.10	-10.70*	-
Small beamtrawlers	RoFTA	21.10	93.30	32.50	36.60	-2.60	8.70	12.70	-
TBB_VL1218	RoFTA	-8.60	11.70	98.90	32.00	138.60	40.70	49.10	-
TBB_VL1824	RoFTA	22.90	102.20	27.00	38.40	-20.30	-5.50	-11.20	-
Small beamtrawlers	CR/BER	1.48	3.16	1.87	1.81	1.00	1.25	1.45	-
TBB_VL1218	CR/BER	0.77	1.39	4.35	3.14	6.23	3.99	7.73	-
TBB_VL1824	CR/BER	1.52	3.29	1.71	1.68	0.64	0.92	0.85	-
Small beamtrawlers	NPM	11.50	29.40	16.80	15.60	0.00	6.50	9.20	-
TBB_VL1218	NPM	-10.90	11.60	28.70	27.10	33.80	34.30	34.30	-
TBB_VL1824	NPM	12.20	29.90	15.00	13.70	-12.50	-2.40	-4.50	-
Small beamtrawlers	Crew Costs/FTE	59.70	112.60	83.40	80.60	50.60	58.40	63.50	-
TBB_VL1218	Crew Costs/FTE	30.60	53.90	62.80	83.10	70.60	84.10	97.50	-
TBB_VL1824	Crew Costs/FTE	61.30	116.90	87.70	80.30	46.10	54.70	54.40	-
Small beamtrawlers	GVA	42.50	97.90	66.40	61.70	27.50	36.20	42.80	-
TBB_VL1218	GVA	0.90	2.70	10.10	9.70	11.80	11.30	20.40	-
TBB_VL1824	GVA	41.60	95.20	56.30	52.00	15.70	24.90	22.30	-

*due to an inactive fishing right market, the value of rights could not be calculated since 2019, ROI values in 2019, 2020 and 2021 are likely overestimated and cannot be compared to those of earlier years

Beamtrawlers larger than 24 meters

The large beamtrawlers consisted of 87 vessels targeting mainly flatfish in 2021, sole and plaice representing almost 74 % of the value of their landings in 2021. The segment of vessels between 24-40 meter is a heterogeneous group consisting of a number of so-called eurocutters (vessels of little more than 24 meter and an engine power of 221 kW) and a

group of vessels of little less than 40 m and an engine power of 1471 kW. The larger vessels are similar to those of the segment of TBB_VL40XX.

Between 2015 and 2018 the average ROI/RoFTA was positive and the fleets had revenues well above the break even revenue. This was mainly due to the lower fuel costs and the transition to innovative pulse gears, but also the increased fish prices.

Since 2019 the ROI/RoFTA have been decreasing with a significant 5 year trend for the TBB_VL2440 fleet. Since 2019 the value of fish quota could not be determined due to lack of fishing rights market those years. For these segments highly dependent on two species with individual quota, this has serious repercussion on the value of ROI and RoFTA is a more appropriate indicator.

In 2021, the catches of the large cutters decreased again. The most important species for these cutters are sole and plaice, the landings of which decreased by 7% and 11% respectively. An increase in fish prices led to a slightly higher turnover.

The beam trawl fleet was particularly impacted by the ban on pulse, with the last licences being withdrawn mid 2021, the share of fuel costs in total revenue has increased significantly again, in addition to the higher oil price.

The prospects for the coming year are not favorable . Due to the war in the Ukraine, the price of oil will increase enormously in 2022, which will put further pressure on the operating results of the cutter fishery. Many vessel owners of this segment will take part in the decommissioning scheme which will become effective in 2023.

The social indicators show that the average crew costs per FTE has shown a significant decreasing trend in the last 5 years and passed under the level of the average Dutch salary¹ for the first time in 2021 which will have repercussions for retaining crew. The GVA of the large beam trawler is still positive despite the decreasing trend and contributes to 25% of the total GVA for the Dutch fleet.

Most of the indicators showed a decreasing trend over the last 5 years for the large beamtrawlers. This negative trend is likely to continue due to the high 2022 fuel price.

Table 7: Economic and social indicators small beam trawl fleet (in grey) and from the STECF segments in that cluster. ROI: Return on Investment in %, RoFTA: Return on Fixed Tangible Assets in %, CR/BER: current revenue over break-even revenue, NPM: net profit margin in %, Crew Costs/FTE: crew costs per full time equivalent in thousand euro and GVA: gross value added in million euro. Trend calculated over the last 5 years of data, '-' indicates a non-significant trend at 5%

Fleet	Indicators	2015	2016	2017	2018	2019	2020	2021	trend
Large beamtrawlers	ROI	13.90	17.60	13.90	20.40	73.70	24.10	26.40*	-
TBB_VL2440	ROI	14.40	27.00	19.50	15.50	-18.60	-	27.60*	decreasing
TBB_VL40XX	ROI	13.90	16.00	13.00	21.10	107.40	44.60	47.60*	-
Large beamtrawlers	RoFTA	93.40	128.00	133.90	152.80	73.50	24.40	26.00	decreasing
TBB_VL2440	RoFTA	55.50	103.30	82.60	52.70	-19.00	-	-27.70	decreasing
TBB_VL40XX	RoFTA	107.20	137.00	155.10	194.60	107.20	44.90	47.10	-
Large beamtrawlers	CR/BER	2.58	3.25	2.70	2.36	1.73	1.25	1.32	decreasing
TBB_VL2440	CR/BER	2.00	2.97	2.28	1.59	0.81	0.72	0.67	decreasing
TBB_VL40XX	CR/BER	2.78	3.35	2.84	2.59	1.98	1.42	1.53	decreasing
Large beamtrawlers	NPM	23.70	28.30	23.50	19.30	11.30	4.70	5.10	decreasing
TBB_VL2440	NPM	19.20	27.40	20.80	10.60	-4.10	-7.10	-7.40	decreasing
TBB_VL40XX	NPM	24.90	28.50	24.20	21.30	14.20	7.20	7.60	decreasing
Large beamtrawlers	Crew Costs/FTE	85.40	100.20	89.00	90.50	68.70	64.70	59.10	decreasing
TBB_VL2440	Crew Costs/FTE	67.80	95.10	88.70	76.60	57.50	53.70	49.00	decreasing
TBB_VL40XX	Crew Costs/FTE	91.50	101.90	89.10	95.00	71.60	68.20	62.30	decreasing
Large beamtrawlers	GVA	91.00	111.00	99.60	88.40	58.60	42.90	38.40	decreasing
TBB_VL2440	GVA	17.30	25.50	20.10	14.60	6.30	6.10	5.00	decreasing
TBB_VL40XX	GVA	73.70	85.50	79.50	73.80	52.30	36.70	33.40	decreasing

*due to an inactive fishing right market, the value of rights could not be calculated since 2019, ROI values in 2019, 2020 and 2021 are likely overestimated and cannot be compared to those of earlier years

Demersal trawlers

The demersal trawl fleet segments consists of 43 vessels in 2021. These segments consisted of vessels using twin trawls, multirig trawls and flyshoot fishery, targeting various species such as mullet, squid, plaice and nephrop (those four species make up for about 61% of the

value of landings in 2021). The segment of 24-40 meter also include one vessel which is larger than 40 meter. The fleet is out of balance on all indicators in 2021.

Demersal trawlers also had to deal with declining catches and prices of key target species in 2020. The supply of Norway lobster in particular shows a sharp decline of 26% for the 18-24m segment.

Effort was about 10% higher in 2021 compared to 2020. The higher effort did not result in a higher income from landings due to lower catches and prices. Due to the higher effort, it can be assumed that the variable costs were also higher. This puts further pressure on net results, which is reflected in the declining economic indicators.

The average crew wage has been lower than the average wage¹ in the Netherlands in 2021. The GVA of the demersal fleet is positive but decreasing and contributes to 11% of the total GVA for the Dutch fleet.

All of the indicators showed a significant decreasing trend over the last 5 years for the demersal fleet.

Flyshoot technique is considered as an important fishing technique which is used by vessels belonging to the demersal trawl segment. In 2021, as in 2020, the demersal trawlers fishing with the flyshoot method had to deal with declining landings of the most important target species. The landings of gurnard fell (-7%) to 1.9 million kg in 2021 (2.0 million kg in 2020) while landings of mullet fell sharply (-31%) to 1.3 million kg. Also landings of squid went down in 2021 (-20%) to just over 0.9 million kg.

Effort in 2021, the number of days at sea, went down for this segment (-2%), only 3,437 (3,519 in 2020).

At the end of 2020, an agreement was reached on management measures for the flyshoot fishery in the English Channel between fisheries representatives from the four countries involved (FRA, BEL, NED and UK). Key elements of the agreement were a cap on the number of permits, a maximum on the rope length and thickness/weight of the gear, the number of days at sea, the minimum mesh size of nets and there would be an adjustment to the 12-mile regime in French waters of the Channel for Dutch and Belgian fishing vessels. France returned to this in May 2021 and in the end an agreement was not made.

Table 8: Economic and social indicators demersal fleet (in grey) and from the STECF segments in that cluster. ROI: Return on Investment in %, RoFTA: Return on Fixed Tangible Assets in %, CR/BER: current revenue over break-even revenue, NPM: net profit margin in %, Crew Costs/FTE: crew costs per full time equivalent in thousand euro and GVA: gross value added

in million euro. Trend calculated over the last 5 years of data, '-' indicates a non-significant trend at 5%

Fleet	Indicators	2015	2016	2017	2018	2019	2020	2021	trend
Demersal trawlers	ROI	19.40	15.10	14.50	8.40	0.60	-10.10	-5.20*	decreasing
DTS_VL1824	ROI	30.70	18.30	-3.00	0.30	-4.20	-4.00	-1.70*	-
DTS_VL2440	ROI	17.30	14.80	17.60	9.50	3.10	-12.20	-6.00*	decreasing
Demersal trawlers	RoFTA	73.90	73.20	33.80	14.80	2.40	-8.00	-3.80	decreasing
DTS_VL1824	RoFTA	125.70	94.40	-3.00	0.40	-4.40	-4.00	-1.90	-
DTS_VL2440	RoFTA	66.60	71.10	45.60	17.30	5.80	-9.40	-4.20	decreasing
Demersal trawlers	CR/BER	2.18	1.72	1.59	1.41	1.13	0.84	0.98	decreasing
DTS_VL1824	CR/BER	2.00	1.31	0.96	1.05	0.92	0.87	1.05	-
DTS_VL2440	CR/BER	2.24	1.88	1.80	1.46	1.18	0.84	0.98	decreasing
Demersal trawlers	NPM	19.30	16.80	13.80	9.00	2.90	-4.70	-0.40	decreasing
DTS_VL1824	NPM	17.20	9.50	-1.50	1.40	-1.80	-3.60	1.20	-
DTS_VL2440	NPM	19.90	18.80	16.40	9.70	4.00	-4.80	-0.70	decreasing
Demersal trawlers	Crew Costs/FTE	87.90	80.70	86.20	81.10	67.50	63.30	57.20	decreasing
DTS_VL1824	Crew Costs/FTE	78.10	61.30	86.20	88.40	55.70	56.40	54.80	-
DTS_VL2440	Crew Costs/FTE	91.90	88.20	86.20	80.30	71.30	64.60	57.60	decreasing
Demersal trawlers	GVA	26.00	26.70	24.70	21.20	20.20	16.60	16.60	decreasing
DTS_VL1824	GVA	6.10	5.20	2.90	1.80	3.50	2.30	1.90	-
DTS_VL2440	GVA	19.90	21.60	21.90	19.40	16.70	14.40	14.70	decreasing

* due to an inactive fishing right market, the value of rights could not be calculated since 2019, ROI values in 2019, 2020 and 2021 are likely overestimated and cannot be compared to those of earlier years

Pelagic fleet

At the end of 2021, the pelagic fleet consisted of 8 vessels in targeting pelagic species. In 2021, the four main species (herring, blue whiting, mackerel and horse mackerel) amounted for 83% of the revenue of the fleet.

In 2021 calculations on revenue of this fleet for years before 2021 has been corrected due to new information on revenues for one of the fishing companies (out of a total of three companies).

The pelagic fleet has sustained a calculated loss every year over the time period until 2015 with negative gross profits. However, there is a tidy positive result with a positive Return On Investment (ROI) and Return on Fixed Tangible Assets (RoFTA) and revenue above the break-even revenue since 2016.

Because the pelagic fleet is vertically integrated in companies the calculated losses do not mean that the sector is unprofitable: the prices used to calculate revenue are internally applied transfer prices provided by the fishing companies as the fish is not sold in auction but transformed and traded directly by the companies. The crew wage is higher than the average Dutch salary¹ and the GVA is positive. In 2021, this GVA contributed to 34% of GVA for the total Dutch fleet.

This is the only fleet segment fully in balance and showing increasing trends in economic indicators.

Table 9: Economic and social indicators pelagic fleet (in grey). ROI: Return on Investment in %, RoFTA: Return on Fixed Tangible Assets in %, CR/BER: current revenue over break-even revenue, NPM: net profit margin in %, Crew Costs/FTE: crew costs per full time equivalent in thousand euro and GVA: gross value added in million euro. Trend calculated over the last 5 years of data, '-' indicates a non-significant trend at 5%

Fleet	Indicators	2015	2016	2017	2018	2019	2020	2021	trend
Pelagic trawlers	ROI	-13.20*	5.50*	2.20*	6.5*	4.50*	16.70*	10.40*	-
TM_VL40XX	ROI	-13.20*	5.50*	2.20*	6.5*	4.50*	16.70*	10.40*	-
Pelagic trawlers	RoFTA	-13.10	6.40	3.40	6.5	5.20	16.70	10.40	-
TM_VL40XX	RoFTA	-13.10	6.40	3.40	6.5	5.20	16.70	10.40	-
Pelagic trawlers	CR/BER	0.28	1.24	1.18	1.4	1.53	1.94	1.84	increasing
TM_VL40XX	CR/BER	0.28	1.24	1.18	1.4	1.53	1.94	1.84	increasing
Pelagic trawlers	NPM	-20.60	7.00	4.40	8.0	8.70	17.40	13.70	-
TM_VL40XX	NPM	-20.60	7.00	4.40	8.0	8.70	17.40	13.70	-
Pelagic trawlers	Crew Costs/FTE	95.60	87.50	90.50	94.4	98.50	108.00	105.10	increasing
TM_VL40XX	Crew Costs/FTE	95.60	87.50	90.50	94.4	98.50	108.00	105.10	increasing
Pelagic trawlers	GVA	28.90	58.40	54.70	57.5	47.10	55.10	50.90	-
TM_VL40XX	GVA	28.90	58.40	54.70	57.5	47.10	55.10	50.90	-

*Due to an inactive fishing right market for the small pelagic species, the value of rights cannot be calculated for this fleet, ROI values for all years are likely overestimated.

Technical indicators

Inactive vessel indicator

Following the method used by STECF, the inactive vessel indicator is calculated for all vessel length categories as the ratio inactive over the total fleet. Three indicators of capacity utilization are calculated, using the number of vessels (TotVes), the engine power (TotkW) and the gross tonnage (TotGT). While the inactivity of the Dutch fleet is below 10% in terms of gross tonnage and engine power, the large number of small inactive vessels brings the

total inactive vessel percentage above the 20% threshold. This is mainly due to the relatively large amount of small inactive vessels (approx. 19% of the fleet total) which contribute to less than 1% to the total tonnage of the fleet. The inactivity percentage of the categories <10m, 12-18m and 18-24m has been growing over the time. Some of those small vessels are kept to store fishing rights but are not actually used to fish.

The larger vessel categories' contribution to the inactivity percentage is small due to the low number of large vessels in the fishery (Table 1). Over the whole time period the inactivity for the large vessels decreased. The large inactive vessels are so called cockle vessels (shellfish) included in this category. These vessels are used in the cockle fisheries, gathered by hand, or other activities where no registrations of landings are required (and in this way registered as inactive).

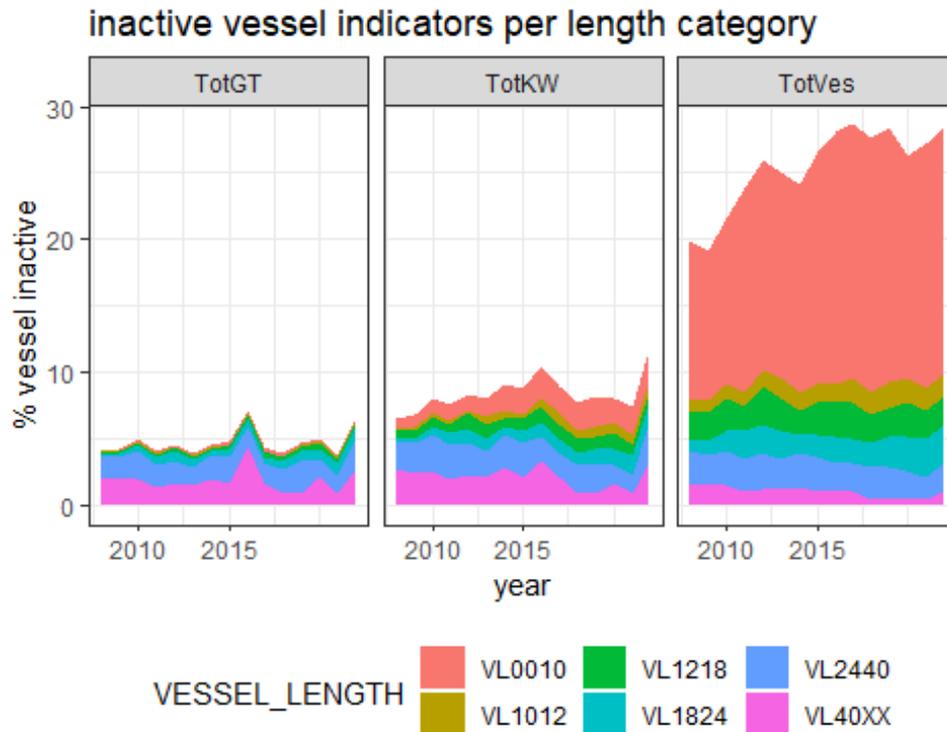


Table 10: Percentage inactive per vessel length category in terms of vessel number, KW and tonnage.

Indicator	Vessel length	2015	2016	2017	2018	2019	2020	2021	2022
TotGT	VL0010	0.22	0.23	0.21	0.22	0.24	0.19	0.23	0.24
	VL1012	0.08	0.08	0.11	0.11	0.12	0.11	0.11	0.11
	VL1218	0.31	0.34	0.35	0.29	0.32	0.40	0.30	0.30
	VL1824	0.60	0.62	0.53	0.57	0.74	0.87	0.87	0.89
	VL2440	1.91	1.51	1.56	1.84	2.43	1.30	1.41	2.41
	VL40XX	1.73	4.43	1.63	0.91	0.95	2.17	0.93	2.76
TotKW	VL0010	1.96	2.41	2.07	2.07	2.23	1.90	2.22	2.48
	VL1012	0.29	0.52	0.83	0.65	0.75	0.74	0.71	0.66
	VL1218	0.93	1.21	1.15	0.97	1.00	1.22	0.82	0.84
	VL1824	0.93	1.04	0.98	0.98	1.19	1.28	1.42	1.43
	VL2440	2.53	1.84	1.87	2.07	2.09	1.32	1.39	3.08
	VL40XX	2.22	3.41	2.12	0.97	0.98	1.68	0.97	3.23
TotVes	VL0010	17.57	18.96	19.16	19.00	19.20	16.67	18.33	18.59
	VL1012	1.26	1.36	1.77	1.66	1.93	1.81	1.81	1.69
	VL1218	2.51	2.59	2.72	2.22	2.07	2.64	2.08	2.11
	VL1824	1.67	1.91	1.77	1.80	2.35	2.50	2.78	2.82
	VL2440	2.51	2.05	2.17	2.36	2.35	1.94	1.67	2.11
	VL40XX	1.12	1.23	1.09	0.55	0.55	0.69	0.56	1.13

Vessel Utilization Ratio

Looking at the utilisation of the active fleet in terms of fishing effort:

- The small scale vessels are largely underutilised, about 20% of the days at sea over the maximum observed effort (max observed days is based on average days at sea of 10 most active vessels). Which comes from very heterogeneous levels of effort in the fishery (note that days at sea are real 24h days, so for small scale fleets with day trips 3 x 8 hours trip would make a day). The maximum number of days at sea observed has also sharply declined since 2016 (from 143 down to 46 days at sea in 2021, this is partly due to the fact that the dredgers are now in the TBB 12-18 fleet).
- The smaller beam trawlers also have very heterogeneous levels of activity in the fleet and are utilised at about 60% of the KW-days (68% in 2021). This is mainly due to the seasonality of the shrimping activity.
- The large beam trawls are utilized at around 70% for all years. The slight decrease in utilisation in the most recent years is due to the increasing trend in the maximum number of days at sea observed for this fleet. From 222 in 2008 up to 309 days in 2018 and 298 in 2021, the most active vessels are now fishing continuously (7 days fishing trips with alternating crews) and are longer at sea than the pelagic trawlers.
- The utilisation for the segments using demersal trawls remains high at 78% of the max seadays while the max number of seadays also increased.

- The average number of seadays of the pelagic fleet has gone down in 2021 (see max seadays).

Table 11: Maximum observed sea days per fleet, based on average days at sea of 10 most active vessels.

Indicator	Fleet	2015	2016	2017	2018	2019	2020	2021	trend
MAX_DAYS	Small coastal	101	143	115	75	45	57	46	decreasing
	DFN_VL1218	22	14	-	-	-	-	-	decreasing
	DFN_VL1824	35	26	27	32	35	57	42	-
	DRB_VL2440	61	143	-	-	-	-	-	increasing
	DTS_VL0010	1	7	-	-	-	-	-	increasing
	PG_VL0010	101	133	115	75	45	49	46	decreasing
	PG_VL1012	35	41	34	25	19	17	16	decreasing
	TBB_VL0010	22	16	24	13	7	11	11	-
	Small beamtrawlers	203	217	210	204	192	198	198	-
	TBB_VL1218	85	89	119	115	93	102	114	-
	TBB_VL1824	203	217	210	204	192	198	198	-
	Large beamtrawlers	252	269	286	309	292	297	298	increasing
	TBB_VL2440	201	211	211	205	198	192	194	-
	TBB_VL40XX	252	269	286	309	292	297	298	increasing
	Demersal trawlers	206	225	213	223	246	236	240	increasing
	DTS_VL1824	180	174	156	165	174	164	162	-
	DTS_VL2440	206	225	213	223	246	236	240	increasing
	Pelagic trawlers	223	261	257	235	230	263	212	-
	TM_VL40XX	223	261	257	235	230	263	212	-

Table 12: Vessel utilization ratio as a proportion of seadays, gtdays and kWdays over maximum observed sea days. Trend calculated over the last 6 years of data, '-' indicates a non-significant trend at 5%

Indicator	Fleet	2015	2016	2017	2018	2019	2020	2021	trend
observeddays	Small coastal	0.18	0.15	0.16	0.18	0.27	0.20	0.23	-
	DFN_VL1218	1.00	1.00	-	-	-	-	-	no trend
	DFN_VL1824	1.14	1.29	0.79	0.62	0.66	0.68	0.67	decreasing
	DRB_VL2440	1.06	0.57	-	-	-	-	-	decreasing
	DTS_VL0010	1.02	0.84	-	-	-	-	-	decreasing
	PG_VL0010	0.16	0.15	0.17	0.18	0.25	0.19	0.21	-
	PG_VL1012	0.67	0.60	0.63	0.62	0.67	0.65	0.59	-
	TBB_VL0010	0.69	0.83	0.41	0.59	0.73	0.68	0.60	-
	Small beamtrawlers	0.62	0.63	0.59	0.58	0.47	0.57	0.61	-
	TBB_VL1218	0.65	0.59	0.57	0.54	0.55	0.64	0.54	-
	TBB_VL1824	0.66	0.68	0.63	0.61	0.50	0.60	0.65	-
	Large beamtrawlers	0.76	0.73	0.70	0.65	0.65	0.66	0.64	no trend
	TBB_VL2440	0.85	0.84	0.82	0.79	0.72	0.79	0.76	no trend
	TBB_VL40XX	0.80	0.77	0.74	0.71	0.72	0.73	0.71	no trend
	Demersal trawlers	0.84	0.78	0.83	0.83	0.71	0.76	0.78	-
	DTS_VL1824	0.93	1.00	1.12	1.00	0.90	1.02	1.14	-
	DTS_VL2440	0.85	0.78	0.83	0.84	0.76	0.78	0.79	-
	Pelagic trawlers	1.14	1.00	1.00	1.14	1.17	1.00	1.00	-
	TM_VL40XX	1.14	1.00	1.00	1.14	1.17	1.00	1.00	-
	observeddgt	Small coastal	1.17	0.65	0.47	0.75	0.85	2.55	0.88
DFN_VL1218		0.95	0.90	-	-	-	-	-	decreasing
DFN_VL1824		1.14	1.36	0.75	0.60	0.61	2.47	0.66	-
DRB_VL2440		0.96	0.57	-	-	-	-	-	decreasing
DTS_VL0010		1.12	1.15	-	-	-	-	-	no trend
PG_VL0010		0.14	0.14	0.16	0.16	0.23	0.17	0.20	-
PG_VL1012		0.58	0.52	0.62	0.56	0.63	0.62	0.57	-
TBB_VL0010		0.39	0.53	0.50	0.56	0.93	0.75	0.68	-
Small beamtrawlers		0.65	0.67	0.70	0.70	0.59	0.66	0.75	-
TBB_VL1218		0.67	0.61	0.77	0.81	0.79	0.76	0.85	no trend
TBB_VL1824		0.64	0.66	0.62	0.61	0.50	0.58	0.63	-
Large beamtrawlers		0.81	0.79	0.75	0.71	0.71	0.72	0.70	no trend
TBB_VL2440		0.82	0.78	0.79	0.77	0.73	0.77	0.75	no trend
TBB_VL40XX		0.68	0.66	0.63	0.61	0.62	0.62	0.61	no trend

Indicator	Fleet	2015	2016	2017	2018	2019	2020	2021	trend
	Demersal trawlers	0.96	0.81	0.81	0.80	0.78	0.78	0.77	no trend
	DTS_VL1824	0.77	0.90	0.99	0.89	0.81	0.90	1.01	-
	DTS_VL2440	0.75	0.68	0.71	0.74	0.65	0.70	0.70	-
	Pelagic trawlers	0.93	0.78	0.80	1.05	0.97	0.81	0.90	-
	TM_VL40XX	0.93	0.78	0.80	1.05	0.97	0.81	0.90	-
observedkw	Small coastal	0.36	0.40	0.19	0.25	0.38	0.53	0.38	-
	DFN_VL1218	0.63	0.96	-	-	-	-	-	increasing
	DFN_VL1824	0.95	1.10	0.64	0.51	0.55	1.36	0.64	-
	DRB_VL2440	1.07	0.52	-	-	-	-	-	decreasing
	DTS_VL0010	1.08	0.74	-	-	-	-	-	decreasing
	PG_VL0010	0.14	0.14	0.14	0.18	0.27	0.22	0.24	no trend
	PG_VL1012	0.40	0.41	0.44	0.42	0.46	0.46	0.52	no trend
	TBB_VL0010	0.67	1.11	0.66	0.71	1.07	0.92	0.67	-
	Small beamtrawlers	0.62	0.64	0.64	0.64	0.53	0.62	0.68	-
	TBB_VL1218	0.63	0.59	0.70	0.67	0.65	0.66	0.68	-
	TBB_VL1824	0.60	0.62	0.57	0.56	0.45	0.55	0.59	-
	Large beamtrawlers	0.83	0.81	0.77	0.73	0.73	0.74	0.71	no trend
	TBB_VL2440	0.83	0.80	0.79	0.77	0.74	0.78	0.75	no trend
	TBB_VL40XX	0.67	0.66	0.63	0.60	0.61	0.62	0.60	no trend
	Demersal trawlers	0.91	0.79	0.79	0.78	0.78	0.75	0.74	no trend
	DTS_VL1824	0.73	0.88	0.99	0.89	0.81	0.90	1.01	-
	DTS_VL2440	0.73	0.67	0.69	0.72	0.64	0.67	0.67	-
	Pelagic trawlers	0.94	0.78	0.80	1.06	0.96	0.80	0.88	-
	TM_VL40XX	0.94	0.78	0.80	1.06	0.96	0.80	0.88	-