Fleet Report of The Netherlands for the year 2020

Following Art 22 of Regulation 1380/2013.

Summary

The active fleet at 31-12-2020 was in total 100.011 GT en 245.561 KW.

The reserved capacity was in total 63.656 GT and 98.323 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 If the term is expired for a given amount of capacity, then the capacity will be skipped from the register and is withdrawn permanently from the Dutch fleet-capacity.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 31-12-2020

	Nr of vessels	KW active	reserved KW	GT active	reserved GT
MFL1	523	213.032	86.754	90.962	59.533
MFL2	197	32.529	11.107	9.049	3.843

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 2020 is presented. This is a description of the main processes and events regarding and impacting the respective fleet segments in 2020. 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 2020, the Dutch fishing fleet consisted of 720 registered vessels. Compared to 2019 this was almost similar fleet size (724 vessels). Since 2008 the size of the fishing fleet fluctuated between 712 to 740 vessels. The mean age per vessel has slightly increased by the years from 27 years (2008) to 33 years (2020). Of all registered vessels 74% (531) was active which slightly higher (+2%) compared to last year. However, the employment decreased with 4% (to 1 893 total jobs) and -10% in FTE (1 504) between 2019-2020. The total vessel power of the fleet remained equally to a total of 245 600 kW) as total tonnage increased with 1% (to 100 000 GT) last year.
In 2020, the number of fishing enterprises totalled 561, with the vast majority (81%), owning a single vessel. Around 19% of the enterprises owned two to five fishing vessels and only a single enterprise owned more than five vessels.
In 2020 the active fleet has a comparable division (in percentages) as 2019, with 36% SSCF (191 vessels) and 64% LSF (340 vessels). The SSCF (+6%) increased where the LSF (-13%) diminished compared to the years from 2008 on. In particular, the number of pelagic freezer trawlers (TM40XX) strongly decreased through the years (-57%). In 2008 there were 14 pelagic (freezer) trawlers, in 2020 only six left among the Dutch flag. Most of them were and are operative among foreign flag, often to better utilize EU pelagic species quota owned by other Member States.
The mean length of SSCF was 8 metres, where this was 28 metres for the LSF between the period 2008 to 2020. 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). Since last 5 years multiple new building orders were given of modern vessels often with a combination of demersal trawl and Danish/Scottish seines (DTS2440) (so called fly shoot or purse seine). Some single orders were given for conventional beam trawl (TBB40XX) with flat fish (plaice or common Sole) as target species. Due to challenges for the fisheries fleet (high fuel prices due to the Russia-Ukraine war, decreasing landing volumes, spatial planning at the North sea and lack of sufficient crew) many demersal trawling enterprises are hesitant with investing into new vessels.

Fishing activity

In 2020, the Dutch fleet spent a total of 48 665 days-at-sea (DaS), an increase of 10% from 2019. These less DaS could be mainly clarified by the higher fishing effort from shrimp cutters (TBB1824). Compared with 2008-2020 the average of effort (DaS) by the Dutch fleet decreased by 4%. The number of fishing days increased (10%) to a total of 42 591 from 2019-2020. Since the increased effort in 2020, the quantity of fuel consumed was estimated around 176 million litres, an increase of 11% from 2019 and a decrease of 26% compared with the mean of time series 2008-2020. The major factors causing the overall decrease in fuel consumption over this period include:

- A decrease of overall effort (DaS and fishing days) by the fleet.
- The results of implementation of alternative or innovative fishing techniques. For instance, pulse, purse seine and twin rig techniques. For pulse technique, there was a 40-50% less fuel consumption used per vessel per day at sea (Oostenbrugge et al, 2018[1]) compared to the conventional beam trawl technique. It is expected that the total fuel consumption will increase in the next few years due to the ban on pulse fishing. Most of these pulse vessels will switch to the traditional beam trawl technique (with tickler chains).
- A lower average engine power per vessel. In order to save fuel costs, new or refitted vessels contains more energy saving engines and hulls. The average kW per vessels decreased with 18%, from 416 (2008) to 341 (2020).

Production

[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

Compared to 2019, the total live weight of landings decreased by 4% as landed value decreased by 6% in 2020. The total live weight of fish and shellfish landed by the Dutch fleet in 2020 was 304 643 tonnes, with a value of EUR 333 million. The decrease in weight is caused by less landed volumes for multiple top species in 2020 compared to the previous year:

- Blue whiting (-20%) for the pelagic freezer trawlers.
- European plaice (-12%). Not clear for what reason(s) the landed volume was lower. According to ICES the biomass of plaice should be above sustainable levels.

The average weight landings per sea day for the Dutch LSF was estimated around 6.5 tonne per day at sea in 2020, a decrease of 13% compared to 2020. This drop in landings was in particular a result of the decreased caught volumes of demersal (European plaice) and pelagic species. The average LPUE for the pelagic trawler fleet (TM40XX) amounted 145 tonnes per DaS in 2020 compared to 149 tonnes per DaS (2019).

The demersal fleet targets mainly flatfish and common shrimp. In terms of economic value, the top landed flatfish species were in 2020:

1. Common sole (EUR 65 million)
2. Common shrimp (EUR 49 million)
3. European plaice (EUR 39 million)
4. Turbot (EUR 16 million)

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

1. Atlantic herring (EUR 31 million)
2. Atlantic mackerel (EUR 25 million)
3. Blue whiting (=Poutassou) (EUR 19 million)
4. Atlantic horse mackerel (EUR 12 million)

Employment and average salaries

Around 18% of the jobs come from the SSCF, whereas the rest comes from the LSF (67% from demersal cutter fleet and 15% from the pelagic trawler fleet). If expressed in FTE, the contribution of the small coastal fleet is much lower: about 3% of the total. The trend from 2008-2015 was downward for employment mainly due to decreasing number of vessels characterized by years of economic losses or small net profits (between losses of EUR 36 million up to profits of EUR 30 million for the total fleet). In 2016 there was a kind of renewed hope by high profits which resulted into new investments (e.g. new vessels) and therefore (re)entering of crew into the fleet. From 2016 the number of pelagic freezer trawlers was decreasing which clarifies the again drop of engaged crew in the fleet. Since the year of 2020 there are increasingly concerns among vessels to have sufficient crew onboard to operate. Due to decreasing economic performances by lower landing volumes more and more fishing crew are transferring to other maritime jobs such as offshore or inland shipping.

Biological indicators of the 2020 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 2020 based on the methods used in the Balance STECF EWG 19-13 (see also Beukhof and Hamon 2020).

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 2020. Values of F and F_{MSY} were taken from ICES stock advice. For segments that have an SHI>1, 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.

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Table 3. The SHI for the Dutch fleet in 2020, 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 (2016-2020)	Number of stocks included	Proportion of landings value with stock assessment data available
Small scale and coastal	**1.00**	**-**	**9**	**0.91**
PG-VL0010	0.66	-0.10	9	0.84
PG-VL1012	1.00	-0.26	6	0.77
DFN-VL1824	-	-	6	0.03
TBB-VL0010	-	-	5	0.13
Small beam trawlers	**0.88**	**-**	**16**	**0.76**
TBB-VL1218	-	-	8	0.00
TBB-VL1824	-	-	16	0.16
Large beam trawlers	**0.87**	**-**	**16**	**0.83**
TBB-VL2440	0.97	-0.19	14	0.73
TBB-VL40XX	0.98	-0.19	16	0.90
Demersal trawlers	**0.99**	**-**	**24**	**0.53**
DTS-VL1824	-	-	14	0.37
DTS-VL2440	-	-	23	0.45
Pelagic	**0.95**	**-**	**15**	**0.81**
TM-VL40XX	0.95	0.01	16	0.81

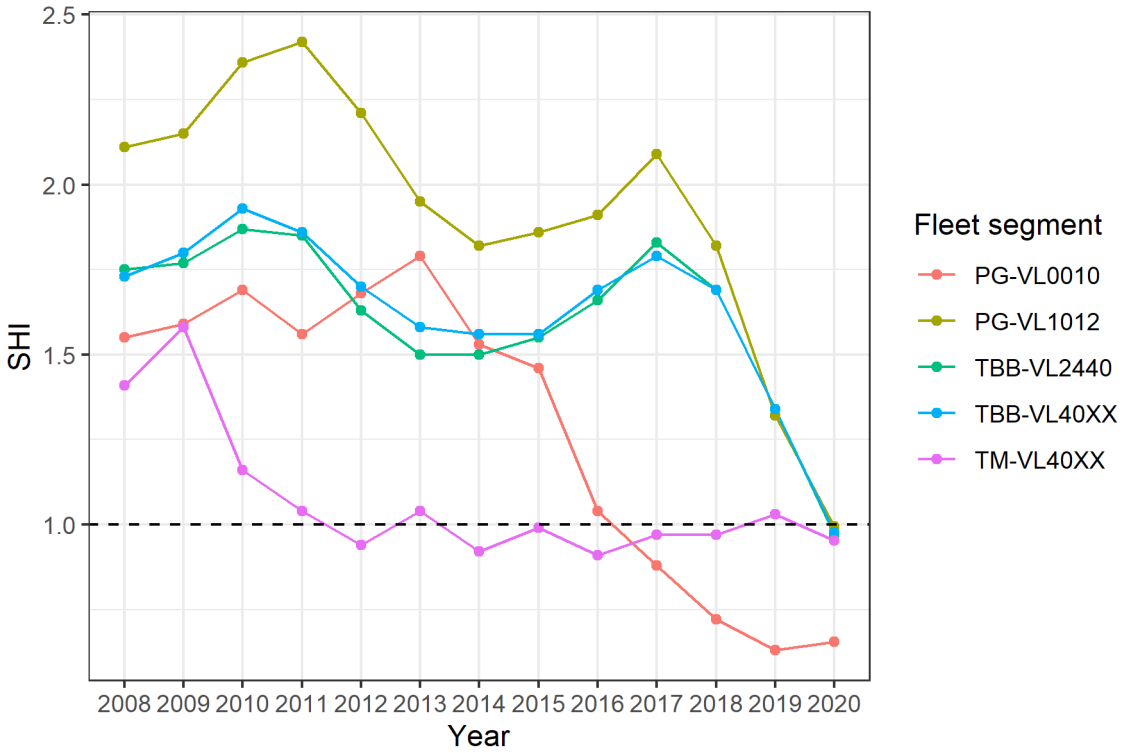

Figure 1. Trends in the Sustainable Harvest Indicator (SHI) from 2008 to 2020 for the fleet segments (pelagic, large beam trawlers and passive gears) that were calculated in this report. Data from 2008-2019 were extracted from STECF-20-11, whereas the values of 2020 are from this fleet report. Values 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 60% 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 2019 was calculated to be 0.66 and 1.00, respectively.

The SHI of the clustered fleet is 1.00 (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, 2020 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	0.23	0.21	1.12	146,537	0.726
bss.27.4bc7ad-h	0.11	0.17	0.64	53,031	0.988
ple.27.420	0.15	0.21	0.71	934	0.993
tur.27.4	0.35	0.36	0.972	919	0.997
cod.27.47d20	0.45	0.28	1.6	425	1
mac.27.nea	0.25	0.26	0.96	97	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 2020 could be calculated and is 0.88 (Table 3). In 2019, SHI for the combined fleet segments was 1.22 and it has therefore dropped below 1. This can be explained by the estimated decrease in F/F_{MSY} of plaice in the North Sea and Skagerrak (~40% of the segment's value), and of sole in the North Sea (~20% of the segment's value).

Large beam trawlers

The SHI for the large beam trawler segments in 2019 is 0.97 for the 24-40 m segment and 0.98 for 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) (Table 5, Table 6). Note that Norway lobster (*Nephrops norvegicus*) was also caught by these segments, but FU6 and FU8 got assigned zero landings value, as the Dutch fleet only catches upon FU5 and FU33, which do not have stock assessments providing F and F_{MSY} estimates.

The SHI of the clustered fleet is 0.87 (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 2020 (Figure 1, Table 3). This is most likely caused by the decrease in in F/F_{MSY} of both plaice (F/F_{MSY} = 0.71) and sole (F/F_{MSY} =1.12).

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 2019. Stocks are listed from highest to lowest cumulative contribution.

Stock	F	F_{MSY}	F/F_{MSY}	Landing value (€)	Cumulative proportion
sol.27.4	0.23	0.21	1.12	8,155,488	0.531
ple.27.420	0.15	0.21	0.71	4,835,688	0.846
tur.27.4	0.35	0.36	0.97	2,070,602	0.98
cod.27.47d20	0.45	0.28	1.6	85,091	0.986
sol.27.20-24	0.20	0.26	0.75	82,713	0.991
whg.27.47d	0.19	0.37	0.50	57,596	0.995
bss.27.4bc7ad-h	0.11	0.17	0.64	53,681	0.998
hke.27.3a46-8abd	0.26	0.26	1.01	10,428	0.999
mac.27.nea	0.25	0.26	0.96	5,640	1
wit.27.3a47d	0.28	0.15	1.90	4,647	1
had.27.46a20	0.19	0.19	0.98	2,413	1
pok.27.3a46	0.45	0.36	1.25	386	1
nep.fu.6	9.1	8.12	1.12	0	1
nep.fu.8	6.1	16.3	0.37	0	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 2019. Stocks are listed from highest to lowest cumulative contribution.

Stock	F	F_{MSY}	F/F_{MSY}	Landing value (€)	Cumulative proportion
sol.27.4	0.23	0.21	1.12	48,737,732	0.558
ple.27.420	0.15	0.21	0.71	27,137,281	0.869
tur.27.4	0.35	0.36	0.97	10,009,331	0.984
cod.27.47d20	0.45	0.28	1.6	460,692	0.989
sol.27.20-24	0.20	0.26	0.75	404,975	0.994
whg.27.47d	0.19	0.37	0.50	190,125	0.996
bss.27.4bc7ad-h	0.11	0.17	0.64	177,165	0.998
wit.27.3a47d	0.28	0.15	1.90	86,462	0.999
hke.27.3a46-8abd	0.26	0.26	1.01	33,677	1
had.27.46a20	0.19	0.19	0.98	29,163	1
pok.27.3a46	0.45	0.36	1.25	6,440	1
mac.27.nea	0.25	0.26	0.96	715	1
nep.fu.3-4	3.86	7.9	0.49	44	1
her.27.3a47d	0.20	0.31	0.64	16	1
nep.fu.6	9.1	8.12	1.12	0	1
nep.fu.8	6.1	16.3	0.37	0	1

Demersal trawlers

The percentage of landing value for the two demersal trawler segments (vessel length 18-24 and 24-40m) with stocks for which stock assessment data was available was low (~40%), and therefore, no SHI was calculated (Table 3). These low percentages could be explained by the large amount of landings of brown shrimp and squid, for which no stock assessment is available. *Nephrops* was also

landed by both segments, but all landings got assigned to FU5 and FU33, which do not have assessments were F and F_{MSY} estimates are provided.

When combining the landings of the two fleet segments, the SHI in 2020 could be calculated and is 0.99 (Table 3). The SHI has dropped below 1 since 2019 due to decreased F/F_{MSY} for cod (F/F_{MSY} =1.6, 2.06 in 2019), turbot (F/F_{MSY} = 0.97, 1.02 in 2019), plaice (F/F_{MSY} = 0.71, 0.79 in 2019) and whiting (F/F_{MSY} = 0.50, 1.21 in 2019). Together with mackerel, for which F/F_{MSY} has increased since 2019 from 0.85 to 0.95, these stocks make up ~85% of the segment's value.

Pelagic fleet

The SHI for the pelagic fleet segment in 2020 is 0.95 (Table 3). The SHI has been below 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 2020 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 7, and are discussed in more detail below.

Table 7. 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	**1**	**sol.27.4**
PG-VL0010	0	
PG-VL1012	1	sol.27.4
DFN-VL1824	0	
TBB-VL0010	0	
Small beam trawlers	**0**	
TBB-VL1218	0	
TBB-VL1824	0	
Large beam trawlers	**1**	**sol.27.4**
TBB-VL2440	1	sol.27.4, rjb.27.3a4
TBB-VL40XX	1	sol.27.4
Demersal trawlers	**0**	
DTS-VL1824	0	
DTS-VL2440	0	
Pelagic	**1**	**hom.27.2a4a5b6a7a-ce-k8, (her.27.6a7bc)**
TM-VL40XX	1	hom.27.2a4a5b6a7a-ce-k8, (her.27.6a7bc)

Small scale and coastal fleet

For the 10-12 m passive gear segment SAR was 1 (Table 7). The corresponding stock at risk North sea sole. The landings of sole of the PG-VL1012 segment comprised more than 10% of the total landings of that segment in 2020 (criterion 1). The SSB of North Sea sole in 2020 is estimated to be below B_{lim} (criterion A). No stocks at risk were identified for the small passive gears (PG-VL0010), the small beam trawl and drift/fixed net segments (Table 7). 2021 biological assessments for sole has shown that the stock has increased to levels well above B_{lim}.

The number of stocks at risk for the clustered fleet segment is 1, corresponding to sole.

Small beam trawlers

No stocks at risk were identified for the two small beam trawler segments and the clustered fleet (Table 7).

Large beam trawlers

The number of stocks at risk for the large beam trawler segments was 1 for both the 24-40m segment and the >40m segment (Table 7). The stock at risk for both segments was North Sea sole, which comprised more than 10% of the landings of the segments (criterion 1). For TBB-VL40XX, sole landings also comprised more than 10% of the total landings of the stock (criterion 2). The SSB of North sea sole in 2020 is estimated to be below B_{lim} (criterion A). 2021 biological assessments for sole has shown that the stock has increased to levels well above B_{lim}.

Another stock potentially at risk for TBB-VL2440 was the common skate complex (consisting of common blue skate and flapper skate) in the North Sea, Skagerrak and Kattegat. The landings by the fleet segment (533kg) may comprised more than 10% of the total landings of the stock, but these landings are unknown to date. As STECF-20-11 mentions, the SAR indicator can be sensitive to low catch values, leading to that the threshold for criterion 2 can easily be reached, as shown also here. No landings are allowed for this stock (criterion C) and the species are listed on the IUCN Red List as critically endangered (criterion D).

The number of stocks at risk for the clustered fleet segment is in absence of clear information on the common skate complex determined to be 1, corresponding to North Sea sole.

Demersal trawlers

No stocks at risk were identified for the two demersal trawler segments and the clustered fleet (Table 7).

Pelagic fleet

The number of stocks at risk for the pelagic fleet in 2020 is assessed to be 1 (Table 7), 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).

The pelagic fleet landed catches of the herring stock in West of Scotland and West Ireland, which has a zero catch advice in terms of commercial catches. However, it has a monitoring TAC of 4840 t for scientific purposes. It is therefore argued that this stock should not be included in the SAR indicator for the pelagic fleet, as the landings fall under the monitoring TAC.

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 (Table 8). According to the SAR indicator, 4 segments are out of balance: PG-VL1012, TBB-VL2440 and TBB-VL40XX and TM-VL40XX. After several consecutive years of decreasing SHI trends, all SHI values are now below 1. For six 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.

In most fleet segments with SAR indicators above 1, this was caused by North Sea sole. 2021 biological assessments for sole has shown that the stock has increased to levels well above B_{lim}.

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.

Due to the schooling nature of rays and skates, bycatch of these species is likely to be binary over the years (absent vs present). Especially for stocks for which a zero-TAC is issued, like the common skates complex, an incidental bycatch triggers SAR to take a value of 1, while measured over slightly longer periods one would conclude that bycatches are minimal.

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 indictors, 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.

References

Beukhof, E. & Hamon, K. (2020). Indicators of the balance between fleet capacity and fishing opportunities: discrepancies between the Dutch national fleet report and STECF. Wageningen Marine Research report C045/20, Wageningen University & Research, 29 p.

Scientific, Technical and Economic Committee for Fisheries (STECF) – 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-20-11). EUR 28359 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-27163-5, doi:10.2760/414107, JRC123057.

Economic and social indicators for the 2020 Dutch fleet

There were 720 vessels in the Dutch fleet in 2020 (720 vessels in 2021), that were allowed to fish commercially in marine waters. From these vessels 531 were considered active based on logbook information (see Table 1). The active fleet is then split into several fleets, the small coastal fishery, the small and large beamtrawlers (<24m or >24m), the demersal trawlers and the pelagic trawlers. Except for the pelagic trawlers, those fleets are themselves made of several segments defined by the data collection framework (DCF) and used by STECF. Because of data trustworthyness and 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 326 vessels and cumulated about 99% of the landings value 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** : Number of vessels per fleet (in grey) and disaggregated by STECF segment.*

Fleet	2014	2015	2016	2017	2018	2019	2020	2021
Small coastal	248	232	231	219	210	206	221	214
DFN_VL1218	13	8	8	-	-	-	-	-
DFN_VL1824	10	7	7	13	17	17	15	16
DRB_VL2440	8	8	8	-	-	-	-	-
DTS_VL0010	13	10	12	-	-	-	-	-
PG_VL0010	167	165	162	161	157	158	171	161
PG_VL1012	17	17	19	18	18	17	20	20
TBB_VL0010	20	17	15	27	18	14	15	17
Small beamtrawlers	176	174	174	178	184	171	173	172
TBB_VL1218	17	17	19	23	23	23	19	23
TBB_VL1824	159	157	155	155	161	148	154	149
Large beamtrawlers	79	77	83	85	88	86	87	87
TBB_VL2440	27	24	28	27	28	25	28	27
TBB_VL40XX	52	53	55	58	60	61	59	60
Demersal trawlers	32	36	32	35	33	49	44	43
DTS_VL1824	10	12	9	8	5	17	10	7
DTS_VL2440	22	24	23	27	28	32	34	36
Pelagic trawlers	10	7	7	8	7	6	6	8
TM_VL40XX	10	7	7	8	7	6	6	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** : 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	2014	2015	2016	2017	2018	2019	2020
inflation	0.30	0.20	0.10	1.30	1.60	2.70	1.10
interest rate	1.45	0.69	0.29	0.52	0.58	0.01	-0.38
real interest rate	1.15	0.49	0.19	-0.77	-1.01	-2.62	-1.46
5yr average interest rate	2.26	1.80	1.27	0.98	0.71	0.42	0.20
consumer price index	0.93	0.93	0.94	0.95	0.96	0.99	1.00

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

Economic indicators

The economic indicators are calculated in real terms with 2015 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). Five socio-economic indicators are given in this section, the interpretation of the ROI (return on investment), CR/BER (current revenue over break even revenue) and NPM (net profit margin) following the STECF guidelines are found in Table 3.

***Table** : 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
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 in 2019 and 2020, ROI values in 2019 and 2020 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 most indicators (ROI excepted) show a significantly decreasing trend over the last 5 years. The (still) positive results in 2020 are mainly due to the pelagic fleet which had a good year. For other fleets the situation is already out of balance as seen is 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 salary[2] and a gross value added (GVA) of more than 159 million euro in 2020. The positive return of investment (ROI) well above the 5 year average interest rate does not significantly prove the viability of the fleet as it is overestimated in 2019 and 2020 due to the lack of data on value rights[3].

[2] Average Dutch labour cost was around EUR 63 k/year in 2020 https://opendata.cbs.nl/statline/#/CBS/nl/dataset/84163NED/table?ts=1558951433485

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

In 2020 owners of fishing vessels could apply for a financial compensation for not sailing for a maximum period of 5 weeks. This subsidy was not included in the income for the calculation of the economic indicators.

***Table** : Economic and social indicators total Dutch fleet. ROI: Return on Investment 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	2014	2015	2016	2017	2018	2019	2020	trend
ROI	4.60	5.40	15.30	11.70	15.10	10.80	15.80*	-
CR/BER	1.39	1.44	2.11	1.82	1.83	1.42	1.46	decreasing
NPM	8.30	8.90	20.40	15.80	14.60	7.90	9.90	decreasing
Crew Costs/FTE	67.90	76.10	98.60	83.80	83.50	65.80	68.70	decreasing
GVA	195.30	197.20	303.60	248.60	234.40	157.20	159.20	decreasing

*due to an inactive fishing right market, the value of rights could not be calculated in 2019 and 2020, ROI values in 2019 and 2020 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 2020, 221 vessels were operating in the small coastal fisheries. They are a heterogeneous group of vessels, including mainly smaller vessels, vessel using active gears with an annual fishing revenue lower than EUR 50 k, vessels using passive gears and vessels fishing for shellfish (because of the 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 2020, the small coastal fleets 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 (47% of the value of landings in 2020, 52% in 2021). Other important species including edible crab, sole and whelk (respectively 7, 6 and 26% in 2020) are more variable.

Two out of the four small coastal fleets are in balance with even an increasing ROI for the DFN_VL1824 due to high catches of whelk. The PG_VL1012 fleet shows insufficient ROI and NPM while the TBB_VL0010 fleet displays out of balance economic indicators for all indicators, at an even lower level than the previous year and the growth value added shows a significantly decreasing trend. The crew costs per FTE show extremely low values over the years (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** : Economic and social indicators small coastal fleet (in grey) and for all the STECF segments in that cluster. ROI: Return on Investment 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	2014	2015	2016	2017	2018	2019	2020	trend
Small coastal	**ROI**	**29.30**	**17.40**	**-30.50**	**4.40**	**11.20**	**17.90**	**8.50***	**-**
DFN_VL1218	ROI	1.50	1.70	1.30	-	-	-	-*	-
DFN_VL1824	ROI	8.30	9.50	-21.20	3.20	5.50	37.50	39.50*	increasing
DRB_VL2440	ROI	679.00	104.80	-115.50	-	-	-	-*	-
DTS_VL0010	ROI	-1.10	-3.10	-8.10	-	-	-	-*	-
PG_VL0010	ROI	10.00	13.70	9.20	7.00	19.50	17.90	5.50*	-
PG_VL1012	ROI	9.30	11.80	7.00	6.30	20.40	17.90	-0.90*	-
TBB_VL0010	ROI	9.00	15.40	-5.70	-0.20	-4.60	-8.80	-59.20*	-
Small coastal	**CR/BER**	**4.62**	**3.25**	**-0.20**	**1.70**	**2.50**	**2.98**	**1.96**	**-**
DFN_VL1218	CR/BER	1.65	2.65	2.17	-	-	-	-	-
DFN_VL1824	CR/BER	2.13	1.83	-0.10	2.73	2.22	6.27	4.82	-
DRB_VL2440	CR/BER	70.34	9.02	-1.43	-	-	-	-	-
DTS_VL0010	CR/BER	0.76	0.18	0.09	-	-	-	-	-
PG_VL0010	CR/BER	1.65	2.65	2.17	1.73	2.91	2.80	1.79	-
PG_VL1012	CR/BER	1.65	2.65	2.17	1.73	2.91	2.80	1.07	-
TBB_VL0010	CR/BER	1.83	2.90	0.18	1.05	0.31	0.16	-0.02	-
Small coastal	**NPM**	**51.50**	**25.40**	**-29.90**	**22.40**	**32.40**	**33.20**	**28.00**	**-**
DFN_VL1218	NPM	18.10	37.80	31.20	-	-	-	-	-
DFN_VL1824	NPM	39.10	10.50	-115.60	36.00	25.00	41.20	54.50	-
DRB_VL2440	NPM	72.80	18.10	-42.10	-	-	-	-	-
DTS_VL0010	NPM	-23.10	-249.20	-81.00	-	-	-	-	-
PG_VL0010	NPM	18.10	37.80	31.20	22.70	37.60	32.40	23.70	-
PG_VL1012	NPM	18.10	37.80	31.20	22.70	37.60	32.40	2.70	-
TBB_VL0010	NPM	33.50	36.20	-37.40	2.90	-72.40	-171.30	-513.30	-
Small coastal	**Crew Costs/FTE**	**15.90**	**31.20**	**97.40**	**12.80**	**19.90**	**12.30**	**21.20**	**-**
DFN_VL1218	Crew Costs/FTE	12.70	7.90	7.20	-	-	-	-	-
DFN_VL1824	Crew Costs/FTE	4.80	34.90	81.80	15.10	45.40	38.40	60.70	-
DRB_VL2440	Crew Costs/FTE	76.50	132.60	877.00	-	-	-	-	-

Fleet	Indicators	2014	2015	2016	2017	2018	2019	2020	trend
DTS_VL0010	Crew Costs/FTE	2.20	2.70	32.60	-	-	-	-	-
PG_VL0010	Crew Costs/FTE	12.70	7.90	7.20	11.70	16.50	8.80	17.80	-
PG_VL1012	Crew Costs/FTE	12.70	7.90	7.20	11.70	16.50	8.80	13.70	-
TBB_VL0010	Crew Costs/FTE	5.30	42.30	63.60	30.00	17.20	18.10	33.00	-
Small coastal	**GVA**	**12.90**	**8.80**	**9.50**	**3.20**	**5.60**	**3.70**	**3.00**	**-**
DFN_VL1218	GVA	0.20	0.20	0.10	-	-	-	-	-
DFN_VL1824	GVA	0.50	0.30	0.20	0.40	1.20	1.10	1.10	-
DRB_VL2440	GVA	8.30	4.60	6.00	-	-	-	-	-
DTS_VL0010	GVA	0.20	0.00	0.20	-	-	-	-	-
PG_VL0010	GVA	2.60	3.10	2.20	2.20	3.90	2.30	1.90	-
PG_VL1012	GVA	0.30	0.40	0.30	0.20	0.40	0.30	0.10	-
TBB_VL0010	GVA	0.80	0.30	0.50	0.30	0.00	-0.00	-0.20	decreasing

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

Beamtrawlers shorter than 24 meters

In 2020 the fleet segment beamtrawlers shorter than 24 meters consists of 173 vessels fishing mainly for shrimps, surf clams and razor clams (representing respectively 64% , 11% and 11% of the fishing revenue in 2020). The return on investment for the small beamtrawlers was high until 2018 with extreme values in 2016 because of low fuel prices, high fish catches and prices and high shrimp prices. The ratio of current revenue over break-even revenue and net profit margin show similar patterns indicating a segment viable until 2018.

The return of investment shows an improvement in 2020 compared to 2019. The improvement is entirely due to the 12-18m part of the segment, the 18-24m also shows an improvement in performance but remains out of balance. The improved return of investment for the group of ships of 18-24m in 2020 is a result of a lower fuel price and an increased price for shrimps with a slightly higher catch of shrimp. In 2020, restrictions in the processing of manual shrimp peeling in Morocco due to Covid-19 caused the shrimp traders to decrease in buying volume to avoid large stocks.

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 2020 it still represented 24% of the total GVA for the Dutch fleet.

Overthe last 5 years, the CR/BER and NPM of the TBB_VL1218 show an increasing trend while the crew costs/FTE and GVA of the small beamtrawl fleet are decreasing, driven by the decreasing trends for the TBB_VL1824.

***Table** : Economic and social indicators small beam trawl fleet (in grey) and from the STECF segments in that cluster. ROI: Return on Investment 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	2014	2015	2016	2017	2018	2019	2020	trend
Small beamtrawlers	**ROI**	**10.30**	**9.80**	**44.60**	**18.60**	**23.70**	**-1.70**	**23.50***	**-**
TBB_VL1218	ROI	-7.30	-8.30	10.10	90.50	29.20	139.40	217.10*	-
TBB_VL1824	ROI	11.40	10.50	46.50	15.10	22.50	-19.40	-0.40*	-
Small beamtrawlers	**CR/BER**	**1.45**	**1.48**	**3.16**	**1.87**	**1.81**	**1.00**	**1.50**	**-**
TBB_VL1218	CR/BER	0.68	0.77	1.39	4.35	3.14	6.23	7.65	increasing
TBB_VL1824	CR/BER	1.50	1.52	3.29	1.71	1.68	0.64	1.01	-
Small beamtrawlers	**NPM**	**10.10**	**11.50**	**29.40**	**16.80**	**15.60**	**0.00**	**12.40**	**-**
TBB_VL1218	NPM	-16.50	-10.90	11.60	28.70	27.10	33.80	50.40	increasing
TBB_VL1824	NPM	10.90	12.20	29.90	15.00	13.70	-12.50	0.40	-
Small beamtrawlers	**Crew Costs/FTE**	**59.60**	**59.70**	**112.60**	**83.40**	**80.60**	**50.60**	**56.50**	**decreasing**
TBB_VL1218	Crew Costs/FTE	24.00	30.60	53.90	62.80	83.10	70.60	76.40	-
TBB_VL1824	Crew Costs/FTE	62.20	61.30	116.90	87.70	80.30	46.10	53.90	decreasing
Small beamtrawlers	**GVA**	**44.60**	**42.50**	**97.90**	**66.40**	**61.70**	**27.50**	**38.80**	**decreasing**
TBB_VL1218	GVA	0.90	0.90	2.70	10.10	9.70	11.80	12.80	-
TBB_VL1824	GVA	43.70	41.60	95.20	56.30	52.00	15.70	26.00	decreasing

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

Large beamtrawlers

The large beamtrawlers consisted of 87 vessels fishing mainly flatfish in 2020, sole and plaice representing almost 75 % of the value of their landings in 2020. The segment of vessels between 24-40 meter is a heterogeneous group consisting of a number of so-called eurocutters (vessels of around 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. Vessels from this last group are similar to those of the segment of TBB_VL40XX.

Between 2014 and 2018 the average ROI was positive and the fleet 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.

The 2019 and 2020 ROI cannot be interpreted as 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.

The decreasing values of the economic indicators for both the 24-40m segment and the +40m can be attributed entirely to declining catches, lower fish prices due to the measures resulting from the corona crisis and higher fuel costs. Due to the lockdown measures, the more expensive species such as sole and turbot, in particular, fell in price. This, in combination with declining fish catches, results in lower income from landings. Due to the withdrawal of more and more pulse licenses, many fishermen are switching to fishing techniques that have a higher fuel consumption than pulse fishing. The lower oil price than in previous years is dampening the rise in fuel costs. The higher fuel consumption due to the switch from pulse fishing to beam trawling therefore results in a somewhat attenuated increase in costs.

The ban of pulse trawl is expected to have further negative impact on the economic performances of this fleet as the last vessels stopped with this gear in 2021.

The social indicators show that the average crew cost per FTE is only at the level of the average Dutch salary[1] which will have repercussions for retaining crew. The GVA of the large beam trawler is positive and contributes to 28% 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 as the pulse trawl is being phased out of the fishery.

***Table** : Economic and social indicators large beam trawl fleet (in grey) and from the STECF segments in that cluster. ROI: Return on Investment 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	2014	2015	2016	2017	2018	2019	2020	trend
Large beamtrawlers	**ROI**	**11.00**	**13.90**	**17.60**	**13.90**	**20.40**	**73.70**	**31.60***	**-**
TBB_VL2440	ROI	8.70	14.40	27.00	19.50	15.50	-18.60	-18.90*	decreasing
TBB_VL40XX	ROI	11.50	13.90	16.00	13.00	21.10	107.40	53.00*	-
Large beamtrawlers	**CR/BER**	**2.00**	**2.58**	**3.25**	**2.70**	**2.36**	**1.73**	**1.31**	**decreasing**
TBB_VL2440	CR/BER	1.54	2.00	2.97	2.28	1.59	0.81	0.80	decreasing
TBB_VL40XX	CR/BER	2.18	2.78	3.35	2.84	2.59	1.98	1.48	decreasing
Large beamtrawlers	**NPM**	**16.30**	**23.70**	**28.30**	**23.50**	**19.30**	**11.30**	**5.90**	**decreasing**
TBB_VL2440	NPM	11.40	19.20	27.40	20.80	10.60	-4.10	-4.90	decreasing
TBB_VL40XX	NPM	17.60	24.90	28.50	24.20	21.30	14.20	8.20	decreasing
Large beamtrawlers	**Crew Costs/FTE**	**73.70**	**85.40**	**100.20**	**89.00**	**90.50**	**68.70**	**64.60**	**decreasing**
TBB_VL2440	Crew Costs/FTE	57.50	67.80	95.10	88.70	76.60	57.50	53.70	decreasing
TBB_VL40XX	Crew Costs/FTE	80.10	91.50	101.90	89.10	95.00	71.60	68.20	decreasing
Large beamtrawlers	**GVA**	**69.40**	**91.00**	**111.00**	**99.60**	**88.40**	**58.60**	**44.40**	**decreasing**
TBB_VL2440	GVA	14.10	17.30	25.50	20.10	14.60	6.30	6.60	decreasing
TBB_VL40XX	GVA	55.30	73.70	85.50	79.50	73.80	52.30	37.80	decreasing

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

Demersal trawlers

The demersal trawl fleet segments consists of 44 vessels in 2020. These segments consisted of vessels using twin trawls, multirig trawls and flyshoot fishery, targeting various species such as surmullet, squid, plaice and nephrops (those four species make up for about 60% of the value of landings in 2020). The segment of 24-40 meter also include one vessel which is larger than 40 meter. The fleet showed a positive return of investment and a revenue over break-even revenue above one since 2013 on average although the smaller demersal trawlers show high inter-annual variability and three years with indicators "not in balance." These indicate an economically viable fleet despite heterogeneity in the segments.

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.

The flyshoot fleet as a whole used about 10% more effort in 2020 compared to 2019. 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 around the average wage[1] in the Netherlands in 2020. The GVA of the demersal fleet is positive and contributes to 11% of the total GVA for Dutch fleets.

Most of the indicators showed a significant decreasing trend over the last 5 years for the demersal fleets.

***Table** : Economic and social indicators demersal fleet (in grey) and from the STECF segments in that cluster. ROI: Return on Investment 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	2014	2015	2016	2017	2018	2019	2020	trend
Demersal trawlers	**ROI**	**6.70**	**19.40**	**15.10**	**14.50**	**8.40**	**0.60**	**-6.70***	**decreasing**
DTS_VL1824	ROI	15.20	30.70	18.30	-3.00	0.30	-4.20	-4.10*	-
DTS_VL2440	ROI	4.60	17.30	14.80	17.60	9.50	3.10	-7.60*	decreasing
Demersal trawlers	**CR/BER**	**1.32**	**2.18**	**1.72**	**1.59**	**1.41**	**1.13**	**0.94**	**decreasing**
DTS_VL1824	CR/BER	1.40	2.00	1.31	0.96	1.05	0.92	0.88	-
DTS_VL2440	CR/BER	1.29	2.24	1.88	1.80	1.46	1.18	0.94	decreasing
Demersal trawlers	**NPM**	**7.70**	**19.30**	**16.80**	**13.80**	**9.00**	**2.90**	**-1.90**	**decreasing**
DTS_VL1824	NPM	9.30	17.20	9.50	-1.50	1.40	-1.80	-3.30	-
DTS_VL2440	NPM	7.20	19.90	18.80	16.40	9.70	4.00	-1.60	decreasing
Demersal trawlers	**Crew Costs/FTE**	**62.50**	**87.90**	**80.70**	**86.20**	**81.10**	**67.50**	**63.40**	**-**
DTS_VL1824	Crew Costs/FTE	54.10	78.10	61.30	86.20	88.40	55.70	56.90	-
DTS_VL2440	Crew Costs/FTE	66.00	91.90	88.20	86.20	80.30	71.30	64.60	decreasing
Demersal trawlers	**GVA**	**15.80**	**26.00**	**26.70**	**24.70**	**21.20**	**20.20**	**17.90**	**decreasing**
DTS_VL1824	GVA	4.10	6.10	5.20	2.90	1.80	3.50	2.30	-
DTS_VL2440	GVA	11.70	19.90	21.60	21.90	19.40	16.70	15.60	decreasing

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

Pelagic fleet

At the end of 2020, the pelagic fleet consisted of 6 vessels in targeting pelagic species on large trawlers. In 2020, the four main species (herring, blue whiting, mackerel and horse mackerel) amounted for 83% of the revenue of the fleet.

The revenue of this fleet has been corrected for all years in 2021 due to the realisation that there was a mistake in what revenue was included for one of the fishing company (out of three companies).

The pelagic fleet has sustained a calculated loss every year over the period until 2015 with negative gross profits. However, there is a tidy positive result with a positive Return On Investment (ROI) and revenue above the breakeven 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 salary[1] and the GVA is positive. In 2020, this GVA contributed to 35% of GVA for the total Dutch fleet.

This is one of the only fleet showing increasing trends in economic indicators.

***Table** : Economic and social indicators pelagic fleet (in grey). ROI: Return on Investment 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	2014	2015	2016	2017	2018	2019	2020	trend
Pelagic trawlers	**ROI**	**-9.20***	**-13.20***	**5.50***	**2.20***	**6.5***	**4.50***	**16.70***	**-**
TM_VL40XX	ROI	-9.20*	-13.20*	5.50*	2.20*	6.5*	4.50*	16.70*	-
Pelagic trawlers	**CR/BER**	**0.73**	**0.28**	**1.24**	**1.18**	**1.4**	**1.53**	**1.94**	**increasing**
TM_VL40XX	CR/BER	0.73	0.28	1.24	1.18	1.4	1.53	1.94	increasing
Pelagic trawlers	**NPM**	**-7.00**	**-20.60**	**7.00**	**4.40**	**8.0**	**8.70**	**17.40**	**-**
TM_VL40XX	NPM	-7.00	-20.60	7.00	4.40	8.0	8.70	17.40	-
Pelagic trawlers	**Crew Costs/FTE**	**90.20**	**95.60**	**87.50**	**90.50**	**94.4**	**98.50**	**108.00**	**increasing**
TM_VL40XX	Crew Costs/FTE	90.20	95.60	87.50	90.50	94.4	98.50	108.00	increasing
Pelagic trawlers	**GVA**	**52.60**	**28.90**	**58.40**	**54.70**	**57.5**	**47.10**	**55.10**	**-**
TM_VL40XX	GVA	52.60	28.90	58.40	54.70	57.5	47.10	55.10	-

*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 lays 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 to small inactive vessels (approx. 19% of the fleet total) which contribute 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 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 period the inactivity for the large vessels decreased. The large inactive vessels are cockle vessels included in this category. These vessels are used in the hand cockle fisheries or other activities where no landing registrations are required (and in this way registered as inactive).

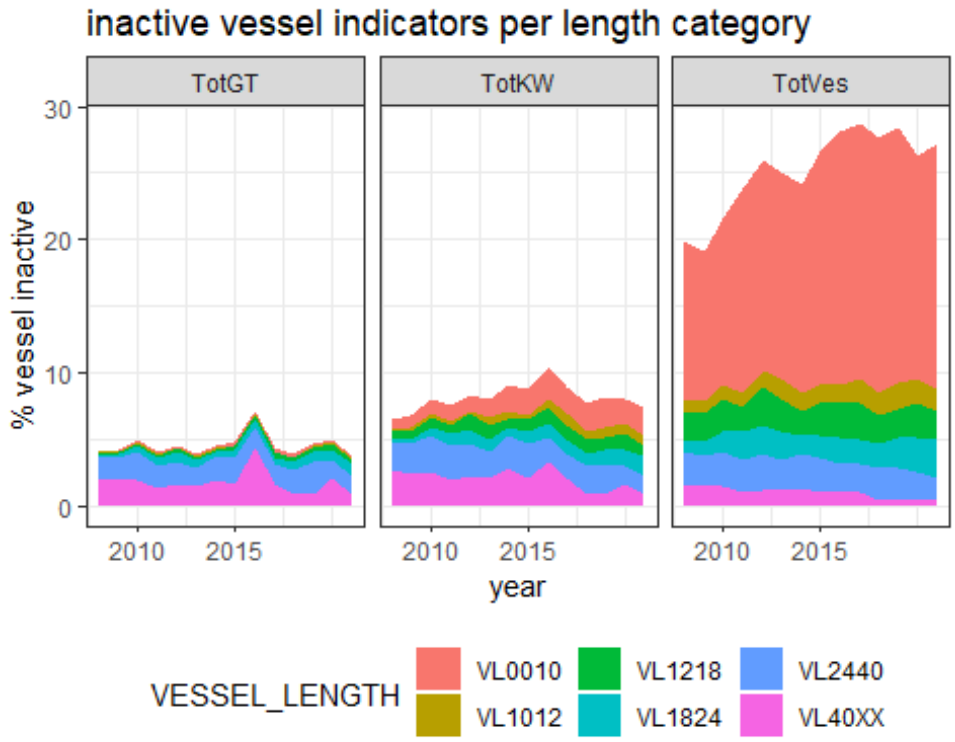

***Table** : Percentage inactive per vessel length category in terms of vessel number, KW and tonnage.*

Indicator	Vessel length	2014	2015	2016	2017	2018	2019	2020	2021
TotGT	VL0010	0.18	0.22	0.23	0.21	0.22	0.24	0.19	0.23
	VL1012	0.08	0.08	0.08	0.11	0.11	0.12	0.11	0.11
	VL1218	0.18	0.31	0.34	0.35	0.29	0.32	0.40	0.30
	VL1824	0.39	0.60	0.62	0.53	0.57	0.74	0.87	0.87
	VL2440	1.74	1.91	1.51	1.56	1.84	2.43	1.30	1.41
	VL40XX	2.04	1.73	4.43	1.63	0.91	0.95	2.17	0.93
TotKW	VL0010	2.01	1.96	2.41	2.07	2.07	2.23	1.90	2.22
	VL1012	0.47	0.29	0.52	0.83	0.65	0.75	0.74	0.71
	VL1218	0.66	0.93	1.21	1.15	0.97	1.00	1.22	0.82
	VL1824	0.68	0.93	1.04	0.98	0.98	1.19	1.28	1.42
	VL2440	2.42	2.53	1.84	1.87	2.07	2.09	1.32	1.39
	VL40XX	2.87	2.22	3.41	2.12	0.97	0.98	1.68	0.97
TotVes	VL0010	15.72	17.57	18.96	19.16	19.00	19.20	16.67	18.33
	VL1012	1.39	1.26	1.36	1.77	1.66	1.93	1.81	1.81
	VL1218	1.81	2.51	2.59	2.72	2.22	2.07	2.64	2.08
	VL1824	1.25	1.67	1.91	1.77	1.80	2.35	2.50	2.78
	VL2440	2.64	2.51	2.05	2.17	2.36	2.35	1.94	1.67
	VL40XX	1.39	1.12	1.23	1.09	0.55	0.55	0.69	0.56

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 in 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 45 days at sea in 2019- 57 in 2020, 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. This is mainly due to the seasonality of the shrimping activity and the limitation of the effort in 2020 due to COVID-19 related restrictions.

- 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 297 in 2020, the most active vessels are now fishing continuously (7 days fishing trips with alteranating crews) and are longer at sea than the pelagic trawlers.

- The utilisation for the segments using demersal trawls remains high at 76% of the max seadays while the max number of seadays also increased.
- The average number of seadays of the pelagic fleet has gone up again after a few years of lower effort (see max seadays). In 2020 pelagic vessels were utilising resp. 80 and 81% of the KW-days and GT-days.

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

Indicator	Fleet	2014	2015	2016	2017	2018	2019	2020	trend
MAX_DAYS	Small coastal	108	101	143	115	75	45	57	-
	DFN_VL1218	45	22	14	-	-	-	-	-
	DFN_VL1824	28	35	26	27	32	35	57	-
	DRB_VL2440	108	61	143	-	-	-	-	-
	DTS_VL0010	7	1	7	-	-	-	-	-
	PG_VL0010	107	101	133	115	75	45	49	decreasing
	PG_VL1012	30	35	41	34	25	19	17	decreasing
	TBB_VL0010	19	22	16	24	13	7	11	-
	Small beamtrawlers	198	203	217	210	204	192	198	-
	TBB_VL1218	84	85	89	119	115	93	102	-
	TBB_VL1824	198	203	217	210	204	192	198	-
	Large beamtrawlers	242	252	269	286	309	292	297	increasing
	TBB_VL2440	199	201	211	211	205	198	192	-
	TBB_VL40XX	242	252	269	286	309	292	297	increasing
	Demersal trawlers	214	206	225	213	223	246	236	increasing
	DTS_VL1824	189	180	174	156	165	174	164	-
	DTS_VL2440	214	206	225	213	223	246	236	increasing
	Pelagic trawlers	221	223	261	257	235	230	263	-
	TM_VL40XX	221	223	261	257	235	230	263	-

***Table** : 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	2014	2015	2016	2017	2018	2019	2020	trend
observeddays	Small coastal	0.17	0.18	0.15	0.16	0.18	0.27	**0.20**	-
	DFN_VL1218	0.79	1.00	1.00	-	-	-	-	-
	DFN_VL1824	1.00	1.14	1.29	0.79	0.62	0.66	**0.68**	decreasing
	DRB_VL2440	0.52	1.06	0.57	-	-	-	-	-
	DTS_VL0010	0.78	1.02	0.84	-	-	-	-	-
	PG_VL0010	0.15	0.16	0.15	0.17	0.18	0.25	**0.19**	-
	PG_VL1012	0.66	0.67	0.60	0.63	0.62	0.67	**0.65**	-
	TBB_VL0010	0.59	0.69	0.83	0.41	0.59	0.73	**0.68**	-
	Small beamtrawlers	0.61	0.62	0.63	0.59	0.58	0.47	**0.57**	-
	TBB_VL1218	0.62	0.65	0.59	0.57	0.54	0.55	**0.64**	-
	TBB_VL1824	0.65	0.66	0.68	0.63	0.61	0.50	**0.60**	-
	Large beamtrawlers	0.76	0.76	0.73	0.70	0.65	0.65	**0.66**	no trend
	TBB_VL2440	0.82	0.85	0.84	0.82	0.79	0.72	0.79	-
	TBB_VL40XX	0.81	0.80	0.77	0.74	0.71	0.72	0.73	no trend
	Demersal trawlers	0.89	0.84	0.78	0.83	0.83	0.71	0.76	no trend
	DTS_VL1824	1.02	0.93	1.00	1.12	1.00	0.90	1.02	-
	DTS_VL2440	0.89	0.85	0.78	0.83	0.84	0.76	0.78	-
	Pelagic trawlers	1.00	1.14	1.00	1.00	1.14	1.17	1.00	-
	TM_VL40XX	1.00	1.14	1.00	1.00	1.14	1.17	1.00	-
observedgt	Small coastal	0.86	1.17	0.65	0.47	0.75	0.85	2.55	-
	DFN_VL1218	0.97	0.95	0.90	-	-	-	-	-
	DFN_VL1824	0.93	1.14	1.36	0.75	0.60	0.61	2.47	-
	DRB_VL2440	0.61	0.96	0.57	-	-	-	-	-
	DTS_VL0010	1.29	1.12	1.15	-	-	-	-	-
	PG_VL0010	0.13	0.14	0.14	0.16	0.16	0.23	**0.17**	-
	PG_VL1012	0.58	0.58	0.52	0.62	0.56	0.63	**0.62**	-
	TBB_VL0010	0.43	0.39	0.53	0.50	0.56	0.93	0.75	increasing
	Small beamtrawlers	0.65	0.65	0.67	0.70	0.70	0.59	**0.66**	-
	TBB_VL1218	0.67	0.67	0.61	0.77	0.81	0.79	0.76	-
	TBB_VL1824	0.64	0.64	0.66	0.62	0.61	0.50	**0.58**	-
	Large beamtrawlers	0.83	0.81	0.79	0.75	0.71	0.71	0.72	no trend
	TBB_VL2440	0.74	0.82	0.78	0.79	0.77	0.73	0.77	-
	TBB_VL40XX	0.69	0.68	0.66	0.63	0.61	0.62	**0.62**	no trend

Indicator	Fleet	2014	2015	2016	2017	2018	2019	2020	trend
	Demersal trawlers	0.99	0.96	0.81	0.81	0.80	0.78	0.78	no trend
	DTS_VL1824	0.92	0.77	0.90	0.99	0.89	0.81	0.90	-
	DTS_VL2440	0.79	0.75	0.68	0.71	0.74	0.65	0.70	-
	Pelagic trawlers	0.87	0.93	0.78	0.80	1.05	0.97	0.81	-
	TM_VL40XX	0.87	0.93	0.78	0.80	1.05	0.97	0.81	-
	Small coastal	0.35	0.36	0.40	0.19	0.25	0.38	**0.53**	-
	DFN_VL1218	0.59	0.63	0.96	-	-	-	-	-
	DFN_VL1824	0.81	0.95	1.10	0.64	0.51	0.55	1.36	-
	DRB_VL2440	0.64	1.07	0.52	-	-	-	-	-
	DTS_VL0010	1.17	1.08	0.74	-	-	-	-	-
	PG_VL0010	0.14	0.14	0.14	0.14	0.18	0.27	**0.22**	no trend
	PG_VL1012	0.41	0.40	0.41	0.44	0.42	0.46	**0.46**	no trend
	TBB_VL0010	0.71	0.67	1.11	0.66	0.71	1.07	0.92	-
	Small beamtrawlers	0.62	0.62	0.64	0.64	0.64	0.53	**0.62**	-
observedkw	TBB_VL1218	0.64	0.63	0.59	0.70	0.67	0.65	**0.66**	-
	TBB_VL1824	0.60	0.60	0.62	0.57	0.56	0.45	**0.55**	-
	Large beamtrawlers	0.85	0.83	0.81	0.77	0.73	0.73	0.74	no trend
	TBB_VL2440	0.72	0.83	0.80	0.79	0.77	0.74	0.78	-
	TBB_VL40XX	0.69	0.67	0.66	0.63	0.60	0.61	**0.62**	no trend
	Demersal trawlers	0.95	0.91	0.79	0.79	0.78	0.78	0.75	no trend
	DTS_VL1824	0.91	0.73	0.88	0.99	0.89	0.81	0.90	-
	DTS_VL2440	0.78	0.73	0.67	0.69	0.72	0.64	**0.67**	no trend
	Pelagic trawlers	0.87	0.94	0.78	0.80	1.06	0.96	0.80	-
	TM_VL40XX	0.87	0.94	0.78	0.80	1.06	0.96	0.80	-

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