

POLAND

Annual report on efforts to achieve a balance between fishing capacity and fishing opportunities for the period 1 January to 31 December 2022

Introduction

Pursuant to Article 22(2) of Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC ('Regulation (EU) No 1380/2013'), EU Member States are required to send to the European Commission, by 31 May each year, a report on the balance between the fishing capacity of their fleets and their fishing opportunities.

I. SUMMARY

As at 31 December 2022, the Polish fishing fleet consisted of 824 fishing vessels (including vessels fishing in the Vistula Lagoon and Szczecin Lagoon). The total fishing capacity of those vessels was 35 179.87 GT and 84 312.52 kW. In general terms, Polish fishing can be broken down into two basic sectors: Baltic Sea fishing (in which the bulk of the fleet is involved) and distant-water fishing.

The key fish species caught by Polish fishermen in the Baltic Sea are sprat, herring and flatfish. The main species caught by Polish distant-water vessels are horse mackerel, blue whiting and mackerel. Since its accession to the European Union, Poland has strictly complied with the entry/exit scheme for fishing capacity as currently provided for in Article 23(1) of Regulation (EU) No 1380/2013.

II. Opinion on the balance between fishing capacity and resources

The results of the biological (2020-2022), technical (2020-2022) and economic (2019-2021) indicators relating to the Baltic Sea fishing fleet, which are presented in Chapter VIII, Section F: 'Estimation and discussion of balance indicators' of this report, show that no segments of the Baltic fleet are effectively balanced with available fishing opportunities.

- **VL0010PG** – vessels up to 10 m in overall length using nets and other passive gear – **imbalanced,**
- **VL1012PG** – vessels between 10 m and 12 m in overall length using nets and other passive gear – **imbalanced,**
- **VL1218DFN** – vessels between 12 m and 18 m in overall length using nets – **imbalanced,**
- **VL1218DTS** – demersal trawlers between 12 m and 18 m in overall length – **imbalanced,**
- **VL1218TM** – pelagic trawlers between 12 m and 18 m in overall length – **imbalanced/partially balanced,**
- **VL1824DTS** – demersal trawlers between 18 m and 24 m in overall length – **imbalanced,**
- **VL1824TM** – pelagic trawlers between 18 m and 24 m in overall length – **imbalanced/partially balanced,**
- **VL2440TM** – pelagic trawlers between 24 m and 40 m in overall length – **imbalanced/partially balanced.**

Pursuant to Article 22(4) of Regulation (EU) No 1380/2013, an action plan has been prepared for the segments of the Baltic fleet with identified structural overcapacity. The action plan forms an integral part of this report and is contained in Chapter IX.

III. SECTION A

Description of the fishing fleet

In general terms, Polish fishing can be broken down into two basic sectors:

- **Baltic Sea fishing** (in which the lion's share of the fleet is involved),
- **distant-water fishing**.

As at 31 December 2022, the Polish Baltic Sea fishing fleet consisted of 822 fishing vessels. The total fishing capacity of those vessels was 16 025.87 GT and 63 312.52 kW. The Baltic fleet is made up of fishing vessels operating in the Baltic Sea and in internal maritime waters, including the Vistula Lagoon and the Szczecin Lagoon.

As at 31 December 2022, the Polish distant-water fishing fleet consisted of 2 fishing vessels. The total fishing capacity of those vessels was 19 154.00 GT and 21 000.00 kW. The distant-water fleet is made up of fishing vessels operating exclusively outside the Baltic Sea and Polish internal waters.

Types of fishing operations

Baltic Sea fisheries

The main fish species caught by Polish fishermen in the Baltic Sea are sprat, herring and flatfish. Flounder is a key Baltic Sea species for Polish fishermen (in particular for the coastal fleet). Catches of pelagic fish (sprat and herring) make up a significant share of the income of Polish fishermen. Baltic Sea catches in 2022, broken down by species: cod (sub-divisions 22-32): 146.7 tonnes, sprat: 71 209.8 tonnes, plaice: 179.1 tonnes, western herring (sub-divisions 22-24): 85.8 tonnes, central herring (sub-divisions 25-27, 28.2, 29 and 32): 16 261.6 tonnes, sea trout: 12 204 units and flounder: 10 459 tonnes.

Distant-water fisheries

Distant-water vessels operated mainly in waters under the jurisdiction of the United Kingdom and Ireland, international waters managed by the South Pacific Regional Fisheries Management Organisation (SPRFMO) and Mauritanian waters. The main species caught by Polish distant-water vessels in the aforementioned fisheries are horse mackerel, blue whiting and mackerel. The distant-water quotas allocated to Poland were utilised either through fishing activity or by exchanging quotas. The Polish distant-water sector has been taking advantage of the possibility to acquire additional catch quota for the particular pelagic species it targets, by exchanging quotas internationally. Species catch quotas that are too low and do not allow economic fishing activity targeting those species are exchanged internationally. The main countries with which Poland exchanged catch quota in 2022 were Lithuania, the Netherlands, France, Spain and Latvia. The Polish distant-water fleet's growth prospects depend on fishing opportunities in the distant-water fisheries where Poland has fishing rights, and on potential new fishing zones or new fishing opportunities. In 2022, distant-water catches amounted to a total of approximately 52 700 tonnes.

Changes in the fishing fleet

Changes in the Polish fishing fleet, broken down between the Baltic Sea and distant-water fleet, are presented in the table below.

Changes in the fishing fleet as at 31 December 2022

	As at 31.12.2021			As at 31.12.2020			Change		
	GT	kW	No of vessels	GT	kW	No of vessels	GT	kW	No of vessels
Total	35 175.25	84 220.24	823	35 179.87	84 312.52	824	+ 4.62	+ 92.28	+ 1
Distant-water fleet	19 154.00	21 000.00	2	19 154.00	21 000.00	2	No change	No change	No change
Baltic fleet	16 021.25	63 220.24	821	16 025.87	63 312.52	822	+ 4.62	+ 92.28	+ 1

The total number of fishing vessels and the fishing capacity of the Polish fishing fleet at the end of 2022 had changed slightly compared to the previous year. In the Baltic fleet, the number of fishing vessels increased by 1 and the capacity of the fleet increased by 4.62 GT and 92.28 kW. In the distant-water fleet, the number of fishing vessels and the fishing capacity at the end of 2022 was the same as at the end of 2021.

IV. SECTION B

Impact on fishing capacity of effort reduction schemes

During the reporting period, no measures for permanent cessation of fishing activity under Article 34 of Regulation (EU) No 508/2014¹ were carried out, including measures for permanent cessation of fishing activity in relation to fleet segments with fishing vessels targeting eastern Baltic cod, western Baltic cod or western Baltic herring as referred to in Article 8a of Regulation (EU) 2016/1139². The fishing capacity ceiling for the Polish fishing fleet therefore was not reduced between 1 January and 31 December 2022.

Between 2016 and 2018, as a result of permanent cessation measures under Article 34 of Regulation (EU) No 508/2014, 46 fishing vessels were permanently withdrawn from commercial fishing, corresponding to a total fishing capacity of 1 069.65 GT and 3 299.00 kW.

In accordance with Article 34(5) of Regulation (EU) No 508/2014, the fishing capacity ceiling of the Polish fleet as set out in Annex II to Regulation (EU) No 1380/2013 was reduced by 1 069.65 GT and 3 299.00 kW.

Changes in the fishing capacity ceiling of the Polish fleet

Fishing capacity permanently removed from the EU fishing fleet register due to permanent cessation of fishing activities in accordance with Article 34 of Regulation (EU) No 508/2014			
Year	No of vessels	GT	kW
2016	33	865.24	2 643.20
2017	8	166.78	505.00
2018	5	37.63	150.80
Total	46	1 069.65	3 299.00

Fishing capacity ceiling of the Polish fleet as set out in Annex II to Regulation (EU) No 1380/2013	
GT	kW
38 270.00	90 650.00

Fishing capacity ceiling of the Polish fleet minus capacity permanently removed from the EU fishing fleet register	
GT	kW
37 200.35	87 351.00

¹ Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund and repealing Council Regulations (EC) No 2328/2003, (EC) No 861/2006, (EC) No 1198/2006 and (EC) No 791/2007 and Regulation (EU) No 1255/2011 of the European Parliament and of the Council (OJ L 149, 20.5.2014, p. 1).

² Regulation (EU) 2016/1139 of the European Parliament and of the Council of 6 July 2016 establishing a multiannual plan for the stocks of cod, herring and sprat in the Baltic Sea and the fisheries exploiting those stocks, amending Council Regulation (EC) No 2787/2005 and repealing Council Regulation (EC) No 1098/2007 (OJ L 191, 15.7.2016, p. 1).

V. SECTION C

Compliance with the entry/exit scheme and with the fishing capacity ceiling

During the reporting period, Poland strictly complied with the capacity entry/exit scheme as set out in Article 23(1) of Regulation (EU) No 1380/2013.

As at 31 December 2022, the fishing capacity of the Polish fleet entered in the fleet register was **35 179.87 GT** and **84 312.52 kW**.

Pursuant to Article 22(7) of Regulation (EU) No 1380/2013, the fishing capacity of the Polish fleet, as specified in the fleet register, did not at any time exceed the fishing capacity ceiling set out for Poland in Annex II to that Regulation (38 270 GT and 90 650 kW) or the ceiling minus fishing capacity permanently removed due to permanent cessation of fishing activities (37 200.35 GT and 87 351.00 kW).

VI. SECTION D

Summary of weaknesses and strengths of the fleet management system

Plan for improvements in the fleet management system

Information on the level of compliance with fleet policy instruments

Poland has fully complied with the fleet capacity restrictions provided for in EU law for balancing entry and exit capacity. The fishing capacity of the Polish fleet, as specified in the fleet register, did not at any time exceed the fishing capacity ceiling laid down for Poland in Annex II to Regulation (EU) No 1380/2013 or the ceiling minus fishing capacity permanently removed due to permanent cessation of fishing activities.

A key feature of the Polish fleet management system is that it incorporates a complex IT system. The IT system consists of a central database containing information necessary for the fisheries administration system to function properly and for it to be used to monitor fishing activity. The system takes into account links between vessel registration procedures, procedures for granting fishing licences and permits, and catch registration and accounting procedures. It has a statistical mechanism which enables a comprehensive set of reports to be generated. In addition, the system has a module for entering into the database electronic reports submitted in accordance with Council Regulation (EC) No 1224/2009³ and Commission Implementing Regulation (EU) No 404/2011⁴. The system was designed using the latest IT, which, among other things, means it is able to offer greater functionality and faster speeds and can be accessed by all authorised users via the internet. A new 'infringements module' was added to the existing system in 2015 to allow users to record any infringements committed by Polish fishing vessels and document all stages of relevant administrative procedures.

Vtrack – a modern satellite fishing vessel monitoring system – became fully operational in 2009 and functioned normally in 2022.

³ Council Regulation (EC) No 1224/2009 of 20 November 2009 establishing a Community control system for ensuring compliance with the rules of the common fisheries policy, amending Regulations (EC) No 847/96, (EC) No 2371/2002, (EC) No 811/2004, (EC) No 768/2005, (EC) No 2115/2005, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007, (EC) No 676/2007, (EC) No 1098/2007, (EC) No 1300/2008, (EC) No 1342/2008 and repealing Regulations (EEC) No 2847/93, (EC) No 1627/94 and (EC) No 1966/2006 (OJ L 343, 22.12.2009, p. 1, as amended).

⁴ Commission Implementing Regulation (EU) No 404/2011 of 8 April 2011 laying down detailed rules for the implementation of Council Regulation (EC) No 1224/2009 establishing a Community control system, for ensuring compliance with the rules of the Common Fisheries Policy (OJ L 112, 30.4.2011, p. 1-153).

ERS-Vcatch, an electronic recording and reporting system allowing fishing and landing documents under Council Regulation (EC) No 1224/2009 and Commission Implementing Regulation (EU) No 404/2011 to be filed electronically, was deployed in January 2011. All Polish vessels over 12 metres in overall length have been equipped so that fishing activity and landing/transshipment declarations can be electronically recorded and reported. In 2022, all catch taken by those vessels was recorded using electronic logbooks.

The automatic SMS-based system for advance registration deployed in 2011 functioned normally in 2022. Data transmitted from fishing vessels were automatically recorded in real time in a single database, which could be accessed by inspectors via the internet.

A balance between fishing capacity and available marine biological resources must be achieved in order to ensure effective fleet management. Adapting the size and structure of the fleet to the fishing opportunities available to Poland will therefore be crucial in the near future. The management rules for both areas are based on EU law and the Sea Fisheries Act of 19 December 2014.

VII. SECTION E

Information on changes to fleet management administrative procedures

In 2022, in the area of sea fisheries, legislative work was completed on the following:

- Regulation of the Minister for Agriculture and Rural Development of 23 March 2022 establishing conversion factors for 2022 applicable to the quantity of marine organisms belonging to species for which individual fishing quotas are exchanged between vessel owners and laying down detailed conditions for the exchange of such quotas (Journal of Laws 2022, item 688);
- Regulation of the Minister for Agriculture and Rural Development of 23 December 2022 establishing conversion factors for 2023 applicable to the quantity of marine organisms belonging to species for which individual fishing quotas are exchanged between vessel owners and laying down detailed conditions for the exchange of such quotas (Journal of Laws 2022, item 2799).

These Regulations implement the authorisation set out in Article 53a(7) of the Sea Fisheries Act of 19 December 2014 (Journal of Laws 2023, item 475), under which the minister responsible for fisheries is to establish, by way of a regulation, conversion factors for each year applicable to the quantity of marine organisms belonging to species for which individual fishing quotas are exchanged between vessel owners, and to lay down detailed conditions for the exchange of such quotas, taking into account overall catch quotas and the market value of individual species of marine organisms.

When adopting the conversion factors laid down in the aforementioned Regulations, account was taken of Council Regulation (EU) 2021/1888 of 27 October 2021 fixing for 2022 the fishing opportunities for certain fish stocks and groups of fish stocks applicable in the Baltic Sea and amending Regulation (EU) 2021/92 as regards certain fishing opportunities in other waters (OJ L 384, 29.10.2021, p. 1) and Council Regulation (EU) 2022/2090 of 27 October 2022 fixing the fishing opportunities for certain fish stocks and groups of fish stocks applicable in the Baltic Sea for 2023 and amending Regulation (EU) 2022/109 as regards certain fishing opportunities in other waters (OJ L 281, 31.10.2022, p. 1). Those Regulations establish the overall catch quotas for individual species of marine organisms subject to restrictions. Suggestions from the fishing community and the current market value of individual species of marine organisms were also taken into account when determining the conversion factors.

Estimation and discussion of balance indicators

Under a contract awarded by the Ministry of Agriculture and Rural Development, the National Marine Fisheries Research Institute in Gdynia calculated the balance indicators below for each segment of the Polish Baltic fleet. It also prepared an assessment of the balance between fishing capacity and fishing opportunities in each segment of the Polish Baltic fleet over 3 consecutive years and drew up an action plan for fleet segments with structural overcapacity:

1. Biological indicators, 2020-2022:

- *Sustainable harvest indicator,*
- *Stocks at risk indicator.*

2. Economic indicators, 2019-2021:

- *Return on investment (ROI) vs next best alternative,*
- *Ratio between current revenue and break-even revenue (CR/BER) indicator.*

3. Technical indicators, 2020-2022:

- *Vessel utilisation indicator,*
- *Inactive fleet indicator.*

The indicators were analysed for the following segments of the Polish Baltic fleet⁵:

- **VL0010PG** – vessels up to 10 m in overall length using nets and other passive gear,
- **VL1012PG** – vessels between 10 m and 12 m in overall length using nets and other passive gear,
- **VL1218DFN** – vessels between 12 m and 18 m in overall length using nets,
- **VL1218DTS** – demersal trawlers between 12 m and 18 m in overall length,
- **VL1218TM** – pelagic trawlers between 12 m and 18 m in overall length (segment established in 2020),
- **VL1824DTS** – demersal trawlers between 18 m and 24 m in overall length,
- **VL1824TM** – pelagic trawlers between 18 m and 24 m in overall length,
- **VL2440TM** – pelagic trawlers between 24 m and 40 m in overall length.

The methodology used to calculate these indicators is consistent with the European Commission's 'Guidelines for the analysis of the balance between fishing capacity and fishing opportunities according to Article 22 of Regulation (EU) No 1380/2013 of the European Parliament and the Council on the Common Fisheries Policy'.

Data sources for biological indicators have not changed in terms of the assumptions upon which previous reports were based. Data are taken from ICES advisory documents for Baltic stocks for 2022 and 2023, and catch data from 2019-2022.

The economic data used for 2019-2021 were collected and approved under the EU Data Collection Framework (DCF EU). The report uses catch and landing data downloaded on 13 March 2023 from the ERS system of the Fisheries Monitoring Centre (*Centrum Monitorowania Rybołówstwa*) to prepare a response to the European Commission's data call in accordance with Regulation (EU) 2017/1004, as required to produce the 2023 Annual Economic Report on the EU fishing fleet.

⁵ Fleet segmentation in line with Commission Delegated Decision (EU) 2019/910 of 13 March 2019 establishing the multiannual Union programme for the collection and management of biological, environmental, technical and socioeconomic data in the fisheries and aquaculture sectors (Table 5B).

For reasons of data confidentiality, distant-water vessels were excluded from the analysis. As there are few such vessels (two vessels) and their technical parameters and catch composition differ considerably from Baltic vessels, it would not be justified to cluster them with any Baltic fleet segment.

1. Assessment and conclusions on the balance between fishing capacity and fishing opportunities in each segment of the fishing fleet on the basis of biological, economic and technical indicators over 3 consecutive years (2019-2022).

The biological indicators (i.e. sustainable harvest indicator and stocks at risk indicator) and technical indicators (i.e. inactive fleet indicator and vessel utilisation indicator) were prepared for the period 2020-2022. Following the cycle for collecting economic data which is determined by the dates for submitting form RRW-19 to the National Marine Fisheries Research Institute (report on the economic performance of fishing vessels for the year), economic indicators can be calculated for 2019-2021.

Table 1 provides a summary of the values of individual parameters which are important for analysing the balance of fleet activity.

Table 1. List of indicator values for individual segments of the Polish fishing fleet over three consecutive years (2019-2021 or 2020-2022 respectively)

Segment	Number of fishing vessels		Sustainable harvest indicator (SHI)		Stocks at risk indicator (SAR)		CR/BER		ROI		Vessel utilisation indicator	
										kWdays	GTdays	
VL0010PG	511	in 2022	0.88*	in 2022	1	in 2022	-1.31	in 2021	-8.11%	in 2021	34%	in 2022
	525	in 2021	1.60*	in 2021	1	in 2021	-4.97	in 2020	-19.43%	in 2020	35%	in 2021
	519	in 2020	1.56*	in 2020	1	in 2020	-0.62	in 2019	-7.10%	in 2019	16%	in 2020
VL1012PG	112	in 2022	0.68*	in 2022	0	in 2022	-3.21	in 2021	-16.31%	in 2021	32%	in 2022
	125	in 2021	1.40*	in 2021	1	in 2021	-2.87	in 2020	-16.79%	in 2020	41%	in 2021
	120	in 2020	1.19*	in 2020	1	in 2020	0.25	in 2019	-3.20%	in 2019	35%	in 2020
VL1218DFN	18	in 2022	0.98	in 2022	0	in 2022	-5.14	in 2021	-12.53%	in 2021	50%	in 2022
	21	in 2021	1.3	in 2021	0	in 2021	-3.03	in 2020	-13.89%	in 2020	51%	in 2021
	20	in 2020	0.30*	in 2020	0	in 2020	-3.81	in 2019	-18.00%	in 2019	46%	in 2020
VL1218DTS	26	in 2022	0.82	in 2022	2	in 2022	1.90	in 2021	5.01%	in 2021	52%	in 2022
	22	in 2021	1.06	in 2021	2	in 2021	-0.40	in 2020	-10.90%	in 2020	59%	in 2021
	34	in 2020	0.92*	in 2020	3	in 2020	0.82	in 2019	-1.60%	in 2019	53%	in 2020
VL1218TM	10	in 2022	0.93	in 2022	2	in 2022	1.69	in 2021	4.33%	in 2021	68%	in 2022
	13	in 2021	1.15	in 2021	1	in 2021	5.22	in 2020	30.34%	in 2020	66%	in 2021
	11	in 2020	1.38	in 2020	0	in 2020		in 2019		in 2019	68%	in 2020
VL1824DTS	-	in 2022	-	in 2022	-	in 2022	-0.35	in 2021	-5.51%	in 2021	-	in 2022
	10	in 2021	1.08	in 2021	1	in 2021	0.02	in 2020	-6.89%	in 2020	34%	in 2021
	9	in 2020	0.79	in 2020	1	in 2020	1.77	in 2019	5.90%	in 2019	41%	in 2020
VL1824TM	52	in 2022	0.99	in 2022	2	in 2022	3.60	in 2021	11.41%	in 2021	49%	in 2022
	45	in 2021	1.22	in 2021	1	in 2021	2.34	in 2020	8.47%	in 2020	44%	in 2021
	44	in 2020	1.42	in 2020	1	in 2020	1.66	in 2019	4.40%	in 2019	51%	in 2020
VL2440TM	43	in 2022	0.99	in 2022	1	in 2022	1.85	in 2021	5.26%	in 2021	58%	in 2022
	44	in 2021	1.26	in 2021	1	in 2021	2.51	in 2020	11.16%	in 2020	67%	in 2021
	43	in 2020	1.45	in 2020	1	in 2020	3.03	in 2019	16.20%	in 2019	64%	in 2020

N.B.: the biological indicators for 2020-2022 have been updated compared to the previous report.

* The indicator for this year and segment can be considered unavailable as fewer than 40% of the landings of the segment during this period were based on stocks for which there was an F/Fmsy ratio.

Detailed definitions for each of the indicators are presented in the following chapters. For the reader's convenience, a basic explanation is provided below:

Biological indicators:

- **SHI** (sustainable harvest indicator) is a measure of how much a segment relies on stocks that are 'overfished' (meaning catch is above MSY). If the indicator is greater than 1, this corresponds to 'overfishing' and means the situation is negative. The higher above 1 the indicator is, the greater the fishing imbalance. The indicator should ideally be at around 1. However, where less than 40% of the catch value comes from stocks for which there are data available to identify possible 'overfishing', this indicator is considered unavailable.
- **SAR** (stocks at risk indicator) is a measure of how many stocks fished by the segment have significantly reduced biomass (usually below the threshold necessary to replenish

successfully; such stocks are identified as ‘at risk’). Stocks at risk which are exploited by the segment are taken into account if catch from such stocks make up more than 10% of the segment’s catch, or if the segment takes more than 10% of the catches of the stock. If, for example, the value of the indicator is 2, this means that the segment catches 2 stocks at risk (taking into account the condition of more than 10%). If the value is 0, this means that no stocks at risk are caught by the segment (taking into account the condition of more than 10%).

Technical and economic indicators:

- **ROI** (return on investment indicator) assesses the efficiency of the assets (capital) bound to the economic activity. If the value of the indicator is greater than 0, this means that the assets generate income. Where this is the case, the indicator is interpreted according to the opportunity cost of capital and interest rate (-3.35% in 2021). If the value of the indicator is above 0 but below the interest rate, this means that there are better alternatives in which to invest capital. If the ROI indicator is below 0, this means that the activity is not profitable.
- **CR/BER** (current revenue/break-even revenue) is the break-even threshold which indicates if revenue is equal to the fixed and variable costs of a segment. If the ratio between current revenue and break-even revenue is less than one, this is an indication of short-term economic inefficiency which may suggest an imbalance.
- **Vessel utilisation indicator** – the ratio between the effort of a given fleet segment and the observed maximum effort actually expended by a segment (in kWdays or GTdays). Values below 70% could mean significant under-utilisation, which may indicate technical overcapacity.
- **Inactive fleet indicator** – the ratio between the number, GT and kW of inactive vessels, and the number, GT and kW of the entire fleet. Under normal conditions, up to 10% of vessels in a fleet segment can be expected to be inactive.
If more than 20% of the fleet segment is recurrently inactive or if the average activity level of vessels in a fleet segment is consistently less than 70% of the potential workable activity of comparable vessels, this could indicate technical inefficiency, which may suggest an imbalance.

Summary assessment of the balance in the individual segments of the Baltic fishing fleet.

1. Performance of segment VL0010PG (vessels up to 10 m in overall length, fishing with nets and other passive gear):

- ❖ Biological indicators (2022):
 - ✓ sustainable harvest indicator: 0.88
 - ✓ stocks at risk indicator: 1
- ❖ Technical indicators (2022):
 - ✓ vessel utilisation indicator: 34% kWdays and 33% GTdays
 - ✓ inactive fleet indicator: 4% of the total number of vessels and in terms of GT and kW in the segment comprising vessels up to 10 m in length
- ❖ Economic indicators (2021):
 - ✓ return on investment (ROI) indicator: -8.11%

✓ current revenue/break-even revenue (CR/BER) indicator: -1.31

The SHI indicator for segment VL0010PG was well above 1 in 2020-2021, but decreased to 0.88 in 2022 (average of 1.34 over the period 2020-2022). Catches by segment VL0010PG are therefore somewhat dependent on overfished stocks according to the MSY principle. Nevertheless, the segment fails to meet the condition whereby a minimum of 40% of the value of landings comes from stocks for which possible ‘overfishing’ may be identified. According to the guidelines, the SHI indicator is therefore deemed unavailable. Consequently, the indicator value for those vessels (as shown in Table 3b) should be treated as supplementary and not be taken into account when assessing the segment’s balance. In addition, the segment fishes one stock at risk (SAR indicator of 1).

The technical indicators did not change significantly in 2022, compared to 2020, and remained far below (33-34%) the recommended value of 70%.

The CR/BER indicator (-1.31) improved in 2021 but remained below the reference level (1) for another consecutive year. Likewise, the ROI indicator (-8.11%) was below the inflation-adjusted interest rate for bonds (-3.25%). The continued negative economic indicators in the segment show that the segment remains imbalanced.

Based on its performance, segment VL0010PG has a long-term economic imbalance. Its imbalance may be structural (recurring negative indicator values in recent years). Between 2020 and 2022, the technical indicators were below the recommended value (70%) which, according to the guidelines, suggests technical overcapacity.

The segment’s SHI indicator over the period 2020-2022 fluctuated between approximately 1.56 and 0.88. However, between 2020 and 2022, the segment was only 10-24% reliant on stocks with an identified F/Fmsy ratio, meaning that the indicator is considered unavailable according to the Commission’s guidelines. During the period 2020-2022, the segment also fished one stock at risk. In conclusion, the values of the SHI indicator – if considered available – point to a biological imbalance in the segment.

When considering the segment as a whole, the negative biological, economic and technical indicators suggest there is an imbalance in the segment.

2. Performance of segment VL1012PG (vessels between 10 m and 12 m in overall length, fishing with nets and other passive gear):

❖ Biological indicators (2022):

✓ sustainable harvest indicator: 0.68

✓ stocks at risk indicator: 0

❖ Technical indicators (2022):

✓ vessel utilisation indicator: 32% kWdays and 33% GTdays

✓ inactive fleet indicator for the segment comprising vessels of between 10 m and 12 m in length: 12% of the total number of fishing vessels and in terms of GT and kW of vessels in this length category

❖ Economic indicators (2021):

✓ return on investment (ROI) indicator: -16.31%

✓ current revenue/break-even revenue (CR/BER) indicator: -3.21% (i.e. below the reference value)

The SHI indicator for the period 2020-2022 decreased from 1.4 to 0.68 (average of 1.09 over the period 2020-2022). However, the value of landings by this segment over the period 2020-2022 from stocks with an identified F/Fmsy ratio accounted for less than 40% (22%-28%) of the segment’s

catch value, meaning that the indicator may be considered unavailable for the period 2020-2022. The SAR indicator fell from 1 over the period 2020-2021, to 0 in 2022.

In 2021, as in 2020, there was an economic imbalance in segment VL1012PG. The trend in the indicator value points to structural economic overcapacity. Between 2020 and 2022, the technical indicators were below the recommended value (70%) which, according to the guidelines, suggests technical overcapacity. Furthermore, the number of inactive vessels increased.

Over the period 2020-2021, the SHI indicator was well above the reference level of 1, suggesting an imbalance in the segment. However, it decreased to 0.68 in 2022. Nevertheless, between 2020 and 2022, the segment was only 22-28% reliant on stocks with an identified F/Fmsy ratio, meaning that the indicator may be considered unavailable. The SAR indicator decreased from 1 over the period 2020-2021, to 0 in 2022.

When considering the segment as a whole, the SHI indicator (where considered available) which was significantly above the reference value, and the technical and economic indicators, point to an imbalance in the segment.

3. Performance of segment VL1218DFN (vessels between 12 m and 18 m in overall length, fishing with nets):

- ❖ Biological indicators (2022):
 - ✓ sustainable harvest indicator: 0.98
 - ✓ stocks at risk indicator: 0
- ❖ Technical indicators (2022):
 - ✓ vessel utilisation indicator: 50% kWdays and GTdays
 - ✓ inactive fleet indicator for vessels between 12 m and 18 m in length (for both fleet segments DFN and DTS): 9% of the total number of fishing vessels and 7% GT and kW of vessels in this length category
- ❖ Economic indicators (2021):
 - ✓ return on investment (ROI) indicator: -12.53%
 - ✓ current revenue/break-even revenue (CR/BER) indicator: -5.14

In 2022, the SHI indicator for the segment under review was slightly below 1, whilst in 2021 it was 1.30 (average of 1.14 over the period 2020-2022). However, in 2020, the value of landings by this segment from stocks with an identified F/Fmsy ratio accounted for 18%. Consequently, the indicator can be considered unavailable for that year. The SAR indicator was 0 throughout the period 2020-2022.

In terms of the economic data, the CR/BER indicator for segment VL1218DFN was below the reference level (1) in 2021 (for the third consecutive year). The ROI indicator was -12.53% and therefore below the level of the next best alternative (-3.5%). There is therefore an economic imbalance in the segment. Between 2020 and 2022, the technical indicators were below the recommended value (70%) which, according to the guidelines, may suggest technical overcapacity. The low levels registered for the economic indicators between 2019 and 2021 suggest there is structural overcapacity.

The SHI indicator only exceeded the reference level of 1 in 2021, pointing to a certain imbalance in the segment in that year. At the same time, in accordance with the guidelines, the indicator is considered unavailable in 2020 as the threshold of 40% of the value of catches from stocks with an identified F/Fmsy ratio was not exceeded. The SAR indicator for the

period 2020-2022 was 0.

When considering the segment as a whole, the SHI and SAR indicators are reasonable, whereas the technical and economic indicators point to an imbalance in the segment.

4. Performance of segment VL1218DTS (demersal trawlers between 12 m and 18 m in overall length):

- ❖ Biological indicators (2022):
 - ✓ sustainable harvest indicator: 0.82
 - ✓ stocks at risk indicator: 2
- ❖ Technical indicators (2022):
 - ✓ vessel utilisation indicator: 52% kWdays and GTdays
 - ✓ inactive fleet indicator: 9% of the total number of fishing vessels in the length category
- ❖ Economic indicators (2021):
 - ✓ return on investment (ROI) indicator: 5.01%
 - ✓ current revenue/break-even revenue (CR/BER) indicator: 1.90

The SHI indicator decreased from 1.06 in 2021 to 0.82 in 2022 (in 2020, the SHI was 0.92, however the value of landings by this segment from stocks with an identified F/Fmsy ratio accounted for 35%, meaning that the indicator may be considered unavailable for that year). The SHI indicator for the period 2020-2022 had an average value of 0.94. The SAR indicator for segment VL1218DTS decreased from 3 in 2020 to 2 in 2021 and 2022. **However, catches of stocks at risk are limited and the high SAR value is due to the segment representing more than 10% of cod by-catch, which has no significant impact on the state of cod stocks.**

In 2021, the economic indicators improved, registering values above the reference levels. By contrast, the technical indicators deteriorated and were below the recommended level for another consecutive year which, according to the guidelines, may point to technical overcapacity. The decrease in the number of vessels in the segment (compared to 2020) may indicate that the segment is spontaneously adapting, whereby fishing activity is ceasing or shifting focus to pelagic fishing.

In conclusion, there is a biological balance in the segment on the basis of the SHI indicator. During most of the years under review, the segment was economically imbalanced (with an improvement in 2021) and technically imbalanced.

5. Performance of segment VL1218TM (pelagic trawlers between 12 m and 18 m in overall length):

- ❖ Biological indicators (2022):
 - ✓ sustainable harvest indicator: 0.93
 - ✓ stocks at risk indicator: 2
- ❖ Technical indicators (2022):
 - ✓ vessel utilisation indicator: 68% kWdays and 61% GTdays
 - ✓ inactive fleet indicator: 9% of the total number of fishing vessels in the length category
- ❖ Economic indicators (2021):
 - ✓ return on investment (ROI) indicator: 4.33%
 - ✓ current revenue/break-even revenue (CR/BER) indicator: 1.69

Segment **VL1218TM** is a new segment which was formed in 2020 mainly from vessels previously part of segment VL1218DTS. During the period under review, the SHI indicator for

segment VL1218TM fell from 1.38 in 2020, to 0.93 in 2022 (average of 1.15 during the period). Due to its high SHI indicator value, segment VL1218TM is close to being biologically balanced. The SAR indicator increased to 2, i.e. 2 stocks at risk were caught. However, catches of stocks at risk are limited and the high SAR value is due to the segment representing more than 10% of cod by-catch, which has no significant impact on the state of cod stocks.

The economic indicators point to a positive level of profitability in the segment. The number of vessels in the segment increased from 11 in 2020 to 13 in 2021. There were 10 vessels in the segment in 2022. The economic indicators for the segment deteriorated in 2021, while remaining above the recommended levels. Between 2020 and 2022, the technical indicators were below the recommended value (70%) which suggests capacity is not being fully utilised. However, 2021 was only the second year of operation for the segment and fishing vessels had not finished migrating from the neighbouring segment.

When considering the segment as a whole, the biological indicators show that the segment is almost balanced. The segment is characterised by positive economic indicators, their high values showing that vessels in the segment are economically safe.

6. Performance of segment VL1824DTS (demersal trawlers between 18 m and 24 m in overall length):

- ❖ Biological indicators (2022):
 - ✓ Not available – segment has been wound up
- ❖ Technical indicators (2022):
 - ✓ Not available – segment has been wound up
- ❖ Economic indicators (2021):
 - ✓ return on investment (ROI) indicator: -5.51%
 - ✓ current revenue/break-even revenue (CR/BER) indicator: -0.35

In 2020, the segment was characterised by a lower-than-recommended ROI indicator (-3.5%). Likewise, the CR/BER indicator was below the reference level (1). As cod accounts for a large share of income from landings, the segment has been registering a decline over successive years under review. **In 2022, the segment was definitively wound up.**

7. Performance of segment VL1824TM (pelagic trawlers between 18 m and 24 m in overall length):

- ❖ Biological indicators (2022):
 - ✓ sustainable harvest indicator: 0.99
 - ✓ stocks at risk indicator: 2
- ❖ Technical indicators (2022):
 - ✓ vessel utilisation indicator: 49% kWdays and 50% GTdays
 - ✓ inactive fleet indicator: 13-14% of the total number of vessels and in terms of GT and kW of vessels in this length category
- ❖ Economic indicators (2021):
 - ✓ return on investment (ROI) indicator: 11.41%
 - ✓ current revenue/break-even revenue (CR/BER) indicator: 3.60

Over the period under review, the SHI indicator for segment VL1824TM decreased from 1.42 to 0.99 (average of 1.21), while the SAR indicator increased to 2. As is the case in

segment VL1218TM, catches of stocks at risk are limited and the high SAR indicator is due to the segment representing more than 10% of cod by-catch, which has no significant impact on the state of cod stocks. There is a relatively small imbalance in the segment.

In 2021, the economic indicators improved. The ROI and CR/BER indicators for segment VL1824TM were above the recommended levels in 2020.

There is a small biological imbalance in segment VL1824TM due to its moderate SHI indicators. The economic indicators remain satisfactory. Between 2020 and 2022, the technical indicators were below the recommended value (70%) which suggests capacity is being under-utilised.

When considering the segment as a whole, the negative biological and technical indicators point to a small imbalance in the segment, whereas the economic indicators point to a balance.

8. Situation in segment VL2440TM (pelagic trawlers between 24 m and 40 m in overall length):

- ❖ Biological indicators (2022):
 - ✓ sustainable harvest indicator: 0.99
 - ✓ stocks at risk indicator: 1
- ❖ Technical indicators (2022):
 - ✓ vessel utilisation indicator: 58% kWdays and 59% GTdays
 - ✓ Inactive fleet indicator: 4% (2 vessels)
- ❖ Economic indicators (2021):
 - ✓ return on investment (ROI) indicator: 5.26%
 - ✓ current revenue/break-even revenue (CR/BER) indicator: 1.85

Over the period under review, the SHI indicator for segment VL2440TM decreased from 1.45 to 0.99 (average of 1.23 over the period), while the SAR indicator remained stable at 1. There is a relatively small biological imbalance in the segment. The biological indicators are similar to those of segment VL1824TM.

There is a small biological imbalance in segment VL2440TM due to its moderate SHI and SAR indicators. The segment is economically stable (economically balanced). The deterioration in the vessel utilisation indicator in 2022 from 67% to 58% (kWdays) is cause for concern.

In conclusion, the segment's biological and technical indicators point to a small imbalance, whereas its economic indicators continue to point to a balance.

2. Catch by fleet segment

In 2022, the performance of the Polish Baltic Sea fishery was impacted by two negative factors. The first was the continuation of restrictions on cod fishing which allow only a small quota for by-catch. The second negative factor was the significant reduction in the available fishing quota (TAC) for herring (by almost 40%). The increase in the TAC for sprat (by approximately 10%) could not compensate for the losses which were felt mostly by smaller fishing vessels.

After a recovery in catches by vessels up to 10 m in length (**VL0010PG**) in 2021 (following their collapse in 2020), catches remained above 5 000 tonnes in 2022, representing a slight deterioration (-6%) compared to the previous year (5 500 tonnes). Despite a lower TAC for herring, vessels up to 10 m caught 44% more herring than the previous year as this category of vessel was excluded from the individual fishing quota system. In turn, there was a considerable reduction in catches of flounder

(by almost 50%) and other fish (by 21%), including mainly bream (-15%), roach (-18%) and zander (-54%).

In 2022, the landing volume of segment **VL1012PG** (which, like the segment described previously, fishes with static gear) decreased considerably once again. Herring catches decreased by as much as 53%, while flounder catches decreased by 42%. As a result, overall catches by the segment in 2022 were 44% lower than in 2021. This marked crisis is a direct consequence of the restrictions on the fishing of cod, which, before the introduction of the restrictions, was the key species securing the economic existence of this category of vessels.

In 2021, vessels in segment **VL1218DFN**, predominantly fishing with gillnets, caught only 229 tonnes of fish. Since vessels belonging to this category, as with those in segment VL1012PG, previously specialised in cod fishing, the specific nature of their metier prevents them from easily adapting to pelagic fishing. The remaining fishing opportunities for flounder have not proved sufficiently profitable for a new fishing strategy to be devised based on this species alone. As a result, vessels in segment VL1218DFN caught 68% less fish in 2022 compared to 2021, including only 33 tonnes of flounder (-38%).

In 2022, segment **VL1218DTS** caught 6 400 tonnes of fish, which corresponded to an increase of 7% compared to 2021. Vessels belonging to this segment mainly fish flounder with a demersal trawl and herring and sprat with a pelagic trawl. In 2022, it was mainly catches of the latter (2 200 tonnes) which brought about the increase in the overall landing volume. Catches of herring decreased by 10%, which was a direct consequence of the reduction in individual fishing quotas for this species.

Segment **VL1218TM** was newly formed in 2020 (mainly comprising vessels which in previous years targeted cod and which, due to the restrictions on cod fishing, decided to switch to pelagic trawls) and registered a significant reduction in catches (-30%). The reduction was mainly in flounder (-48%). However, it was also in sprat, which was somewhat surprising given the higher catch limits (-27%). By contrast, landings of herring increased (+20%). These anomalies can be explained by the fact that vessels from neighbouring vessel groups, e.g. VL1218DFN, joined the segment.

Segment **VL1824DTS** was not identified as a separate vessel group in 2022 due to a reduction in the number of vessels in the segment (fewer than 10). Some of the vessels from this segment moved to segment VL1824TM.

Segment **VL1824TM** caught 6% less fish in 2022 compared to 2021, a similar reduction compared to the previous year. A significant reduction was observed in landings of herring (-35%) and flounder (-24%). In the case of the former, the observed reduction is a direct consequence of the decrease in the TAC, while fishing for flounder, which was carried out by vessels previously in segment VL1824DTS, could be naturally phased out in favour of pelagic fishing.

The final segment under review comprises the largest vessels which mainly fish with pelagic trawls (**VL2440TM**). In 2022, the catch volume taken by the segment decreased by 12%, caused mainly by a reduction in catches of herring (-39%). Reductions were also registered in landings of flounder (by 41%) and other fish (by 62%), including whiting (-60%), sand lance (-56%) and sand eel (-86%).

Table 2. Landings of key fish species by segment, 2020-2022 (in tonnes)

Segment	Species	2020	2021	2022	2022/2021
VL0010PG	Sprat	0.0	0.4	0.2	-57%
	Herring	603.1	1 621.4	2 327.8	44%
	Flounder	616.7	780.4	406.2	-48%
	Other	1 729.0	3 103.5	2 437.7	-21%
Total VL0010PG		2 948.8	5 505.5	5 171.9	-6%
VL1012PG	Sprat	0.0			-
	Herring	497.7	519.9	244.6	-53%
	Flounder	1 943.1	1 249.6	725.2	-42%
	Other	326.0	225.8	142.2	-37%
Total VL1012PG		2 766.8	1 995.3	1 112.0	-44%
VL1218DFN	Sprat	0.7	390.4	162.9	-58%
	Herring	0.3	237.5	31.7	-87%
	Flounder	152.3	52.7	32.8	-38%
	Other	34.9	40.1	1.7	-96%
Total VL1218DFN		188.1	720.7	229.1	-68%
VL1218DTS	Sprat	1 353.9	1 515.9	2 203.9	45%
	Herring	605.8	494.6	445.4	-10%
	Flounder	3 327.5	3 306.7	3 287.0	-1%
	Other	2 567.2	667.6	478.6	-28%
Total VL1218DTS		7 854.3	5 985.0	6 414.9	7%
VL1218TM	Sprat	1 885.5	2 676.9	1 948.3	-27%
	Herring	1 021.0	649.5	777.4	20%
	Flounder	1 882.1	2 049.8	1 059.8	-48%
	Other	2 424.1	1 649.0	1 108.0	-33%
Total VL1218TM		7 212.6	7 025.2	4 893.5	-30%
VL1824DTS	Sprat	609.1	739.0		-
	Herring	170.3	131.3		-
	Flounder	576.9	654.5		-
	Other	165.0	326.2		-
Total VL1824DTS		1 521.2	1 851.0		-
VL1824TM	Sprat	15 312.7	17 980.2	19 285.9	7%
	Herring	9 069.2	6 070.9	3 940.0	-35%
	Flounder	2 248.1	2 648.7	2 007.8	-24%
	Other	3 326.7	1 919.4	1 762.3	-8%
Total VL1824TM		29 956.6	28 619.2	26 996.0	-6%
VL2440TM	Sprat	41 411.5	43 250.9	47 546.3	10%
	Herring	25 633.6	17 631.3	10 810.5	-39%
	Flounder	3 932.5	4 115.0	2 411.1	-41%
	Other	6 968.0	6 608.6	2 488.2	-62%
Total VL2440TM		77 945.6	71 605.9	63 256.1	-12%
Grand total		130 394.1	123 307.7	108 073.5	-12%

3. Sustainable harvest indicator

The sustainable harvest indicator (SHI) is a measure of how much a fleet segment relies on stocks that are overfished. ‘Overfished’ means that a stock is fished with a fishing mortality (F) above the reference value. In line with the European Commission’s guidelines, the F_{msy} fishing mortality rate, i.e. the mortality rate leading to the maximum sustainable yield (MSY) over a multi-year period or, if defined, the upper range of the mortality rate, was adopted as a reference fishing mortality.

The SHI indicator for a fleet segment is determined on the basis of all stocks exploited by the segment and for which data are available to calculate the F/F_{msy} ratio. The sustainable harvest indicator is an average of the F/F_{msy} ratio for individual stocks *i* weighted by the value of the landings of that stock by the segment concerned *V_i*:

$$SHI = \frac{\sum_{i=1}^n V_i \frac{F_i}{F_{msy_i}}}{\sum_{i=1}^n V_i},$$

where *n* represents the number of stocks taken into account.

The lower the value of the indicator, the less dependent the given fleet segment is on overfished stocks. The optimal situation is where all *F_i/F_{msy_i}* values are close to 1, meaning the value of the SHI indicator is also close to 1 and stocks are exploited close to MSY. According to guidelines from the Scientific, Technical and Economic Committee for Fisheries (STECF), the indicator is deemed unavailable if more than 60% of the value of landings by the segment is made up of stocks for which a fishing mortality rate and F_{msy} have not been determined.

The SHI indicator was calculated taking into account stocks for which the F/F_{msy} ratio could be established based on ICES assessments and analyses. Those stocks are:

- a) Western Baltic cod (sub-divisions 22-24)
- b) Eastern Baltic cod (sub-divisions 24-32)⁶
- c) Western Baltic herring (sub-divisions 20-24)
- d) Central Baltic herring (sub-divisions 25-29 and 32)
- e) Baltic Sea sprat (sub-divisions 22-32)
- f) Plaice in sub-divisions 24-32

In 2023, a benchmark assessment was carried out on herring and sprat stocks, resulting in changes to some reference points, including the MSY reference points. The most significant changes to these points were in relation to central Baltic herring, so the balance assessments may differ from those presented in previous years. In addition, there was no segment VL1824DTS in 2022, meaning no calculations for that segment.

For the period 2020-2022, the value of landings of the stocks listed under points a) to f) was less than 40% of the total value of landings primarily in segments VL0010PG and VL1012PG. In 2020, the value of those landings was also less than 40% in segments VL1218DFN and VL1218DTS (Table 3a). For those years and segments, the SHI indicator can be considered unavailable, although it has been calculated and is presented in this report. Overall, F and F_{msy} values enabling the SHI indicator to be determined were available for between 65% and 74% of the value of landings in individual years over the period 2020-2022.

⁶ No F_{msy} values were determined for eastern Baltic cod. However F/F_{msy} assessments based on the stock-production model (SPiCT) are available and were used to calculate the SHI.

Table 3a. Value of total landings of cod, herring, sprat and plaice as a percentage of the value of total landings by segment, 2020-2022. Values below 40% are shown in red. (In 2022, there was no VL1824DTS segment).

Segment	Year		
	2020	2021	2022
VL0010PG	10	15	24
VL1012PG	26	28	22
VL1218DFN	18	40	74
VL1218DTS	35	49	45
VL1218TM	43	51	59
VL1824DTS	58	51	-
VL1824TM	80	83	84
VL2440TM	87	86	92

The SHI indicators are presented in Table 3b. The values calculated for 2022 are included alongside updated calculations for 2020-2021 resulting from changes in the F/Fmsy level in subsequent stock assessments by ICES.

Table 3b. Sustainable harvest indicator (SHI) for the Polish fleet segments under review, 2020-2022. (In 2022, there was no segment VL1824DTS).

Segment	Year			Average**
	2020	2021	2022	
VL0010PG	1.56*	1.60*	0.88*	1.34*
VL1012PG	1.19*	1.40*	0.68*	1.09*
VL1218DFN	0.30*	1.30	0.98	1.14
VL1218DTS	0.92*	1.06	0.82	0.94
VL1218TM	1.38	1.15	0.93	1.15
VL1824DTS	0.79	1.08	-	0.93
VL1824TM	1.42	1.22	0.99	1.21
VL2440TM	1.45	1.26	0.99	1.23

* The indicator for this year and segment can be considered unavailable as fewer than 40% of the landings of the segment during this period were based on stocks for which there was an F/Fmsy ratio.

** The average for segments VL1218DFN and VL1218DTS was calculated on the basis of 2021-2022, i.e. when the SHI indicator was considered to be available.

During the period 2020-2021, all fleet segments were reliant to a certain degree on ‘overfished’ stocks. In most years the SHI was greater than 1. In 2021, the SHI indicator for segments VL1824TM, VL2440TM and VL1218TM was lower than in 2020. These segments primarily fish herring and sprat. In 2022, all segments had an indicator below 1. In most segments, the indicator was close to 1, which points to a good balance for those segments. The lower SHI indicators in 2022 were mainly caused by a reduction in fishing mortality in central Baltic herring and exploitation of sprat close to MSY.

In the period 2020-2021, the highest indicator values (significantly exceeding 1) were for segments VL0010PG and VL1012PG (Table 3b). Formally speaking, the SHI indicators for those segments can be considered unavailable (more than 60% of their catch was based on stocks for which the F/Fmsy ratio had not been determined). Moreover, the high value of the indicator mainly came from catches of central Baltic herring.

Over the 3-year period (2020-2022), segments VL1824TM, VL2440TM and VL1218TM had an average SHI indicator exceeding 1 by approximately 20%, which points to an imbalance. In 2022, however, the indicator fell below 1. As already mentioned, those segments primarily fish herring and sprat. The average indicators for segments VL0010PG and VL1012PG which exceeded 1 may be considered unavailable, as F and Fmsy values were determined for less than 40% of the stocks caught by those segments.

Segment VL1218DTS was fully balanced in terms of its SHI indicator which had an average value below 1.

4. Stocks at risk indicator

The stocks at risk indicator (SAR) aims to determine how much of the catch taken by a fleet segment is based on stocks with heavily reduced biomass and in a condition such that stock productivity may be greatly diminished. In accordance with the Commission’s guidelines, a stock at risk is a stock:

- a. with reproductive biomass which is less than the threshold below which the stock’s renewal significantly decreases. This threshold biomass is usually referred to as B_{lim} ,
- b. for which there is advice to close the fishery, prohibit targeted fishing, reduce fishing to the lowest possible level, etc.,
- c. subject to regulations on returning fish unharmed to the sea or prohibiting landings,
- d. on the ‘red list’ or listed by CITES.

The indicator is calculated as the **number of stocks** exploited by a segment which meet the following conditions:

Condition 1: landings from stocks considered to be at risk make up more than 10% of the fleet segment’s landings

or

Condition 2: more than 10% of the fleet segment’s landings are from stocks considered to be at risk.

The calculation formula is as follows:

$$SAR = \sum_{i=1}^{i=n} (1 \text{ if } (C_i > 0.1C_t) \text{ or } (C_i > 0.1T_i); \text{ otherwise } 0),$$

where:

C_i – landings of stock i ,

C_t – total landings of all stocks taken by the fleet segment,

T_i – total landings of stock i taken by all segments.

Of the stocks which were analysed, the following met the ‘at risk’ criteria over the period 2020-2022:

- a) Western Baltic herring,
- b) Western Baltic cod,
- c) Eastern Baltic cod,

as the stock biomass for each of those stocks was lower than the corresponding B_{lim} during that period.

If, for example, the value of the SAR indicator is 2, this means that the segment catches 2 stocks at risk. If the value is 0, this means that no stocks at risk are caught by the segment (taking into account the condition of over 10%). The SAR values calculated for the segments of the Polish fleet under review are presented in Table 4.

Table 4. Stocks at risk indicator (SAR) and landings ('000 tonnes) for the Polish fleet segments under review, 2020-2022. (In 2022, there was no segment VL1824DTS).

2020

Segment	Herring landings 20-24	Cod landings 22-24	Cod landings 24-32	Segment landings	SAR indicator
VL0010PG	0.08	0.00	0.02	2.95	1
VL1012PG	0.02	0.01	0.02	2.77	1
VL1218DFN	0.00	0.00	0.01	0.19	0
VL1218DTS	0.06	0.04	0.20	7.85	3
VL1218TM	0.01	0.00	0.02	7.21	0
VL1824DTS	0.00	0.00	0.10	1.52	1
VL1824TM	0.02	0.01	0.02	29.96	1
VL2440TM	0.37	0.00	0.01	77.95	1
Total	0.57	0.08	0.40	130.39	8

2021

Segment	Herring landings 20-24	Cod landings 22-24	Cod landings 24-32	Segment landings	SAR indicator
VL0010PG	0.05	0.00	0.01	5.51	1
VL1012PG	0.02	0.01	0.01	2.00	1
VL1218DFN	0.00	0.00	0.01	0.72	0
VL1218DTS	0.01	0.14	0.03	5.98	2
VL1218TM	0.01	0.01	0.01	7.03	1
VL1824DTS	0.02	0.03	0.00	1.85	1
VL1824TM	0.01	0.02	0.01	28.62	1
VL2440TM	0.11	0.00	0.01	71.61	1
Total	0.23	0.22	0.08	123.31	8

2022

Segment	Herring landings 20-24	Cod landings 22-24	Cod landings 24-32	Segment landings	SAR indicator
VL0010PG	0.06	0.00	0.00	5.17	1
VL1012PG	0.00	0.00	0.01	1.11	0
VL1218DFN	0.00	0.00	0.00	0.23	0
VL1218DTS	0.00	0.03	0.04	6.41	2
VL1218TM	0.00	0.00	0.02	4.89	2
VL1824DTS	-	-	-	-	-
VL1824TM	0.00	0.00	0.02	27.00	2
VL2440TM	0.07	0.00	0.00	63.26	1
Total	0.14	0.04	0.10	108.07	8

* In 2020, segment VL1218DTS also included segment VL1218TM which was being formed at that time.

In 2020-2022, there were no fleet segments in which landings of stocks at risk (western Baltic cod, western Baltic herring and eastern Baltic cod) exceeded 10% of the segment's landings (condition 1 regarding reliance on catch from stocks at risk). Landings of those stocks were limited and represented a small percentage of the Polish fleet's total landings. However, in some cases, landings of stocks at risk by a given segment represented over 10% of the landings of that stock by all segments (condition 2 regarding reliance on catch from stocks at risk).

Over the period 2020-2021, the SAR indicator in the majority of segments was above zero. Most commonly the indicator was 1 and, less commonly, 0, 2 or 3. In 2022, the stocks at risk indicator had a value of 1 or 2 in most segments (Table 4). For each of the years under review, the total SAR indicator was 8. Segment VL1218DTS was most reliant on stocks at risk and had an SAR indicator of 2 or 3, i.e. the segment fished 2 or 3 stocks at risk while fulfilling condition 2.

The indicator value of 2 for segments VL1218DTS, VL1218TM and VL1824TM is **not a result of these segments relying heavily on catches of stocks at risk**, as it was caused by by-catch from both cod stocks in the pelagic fishery. The by-catch volumes are small. However, due to the cessation of targeted cod fishing, they account for at least 10% of catches of both cod stocks by the Polish fleet, causing the high SAR indicator of 2.

Comments on the analysis of biological indicators

The Polish fleet fishes resources in the Baltic Sea in accordance with EU fishing quotas. F/Fmsy ratios are only above 1 for central Baltic herring and western Baltic cod stocks. For the remaining stocks, F/Fmsy ratios are close to 1 (e.g. sprat) or clearly below 1 (western Baltic herring, plaice, eastern Baltic cod). In the case of western Baltic cod, Polish catches are marginal (representing fractions of a percent of the Polish catch) and do not present a risk to the stock. Where Polish segments have an SHI above 1, this is mainly due to the F/Fmsy values for central Baltic herring, which are significantly above 1 (ranging from 1.9-1.7 over the period 2020-2021).

This higher SHI for herring was caused by a slightly higher catch than advised by ICES (e.g. Russia sets TACs independently and without consulting the EU) and by the ICES biomass forecasts and catch forecasts for herring which were possibly too optimistic (in terms of Fmsy). Every year, ICES issues advice on MSY fishing. However, in subsequent years, actual fishing mortality has proven to be much higher than advised, despite the total Baltic herring catch slightly exceeding catch limits. During the period 2022-2023, the methodology for assessing and forecasting Baltic herring and sprat stocks (benchmark assessment) was revised. Time will tell if this resolves the issue of the overly optimistic catch forecasts for central Baltic herring. If it does, F/Fmsy ratios will fall to approximately 1 and Polish TM segments will be fully balanced.

F/Fmsy ratios for eastern Baltic cod are below 1 due to the fishing ban applying to this stock (values above 0 are the result of allowable by-catch). On account of the ban on targeted cod fishing, fleet segments which previously fished that stock are in a difficult situation and should be covered by an action plan. Formally speaking, however, during the period 2020-2022 there was a relatively small imbalance according to the biological indicators.

5. Return on investment (ROI) vs next best alternative

The return on investment indicator is a measure of the efficiency of an undertaking's operations, enabling the efficiency of the assets (capital) bound to the economic activity to be assessed. If the value of the indicator is greater than 0, this means that the assets generate income. In this scenario, the interpretation of the indicator depends on the opportunity cost of capital. If the ROI indicator is below 0, this means that the activity is not profitable and that capital would be better used elsewhere (e.g. in the form of long-term risk-free securities or other revenue sources). The differences in indicator values for individual fleet segments show which group of vessels (vessel segment) operates making the most efficient use of assets. The indicator is calculated in terms of the profitability of an undertaking relative to the value of its fixed assets (value of the vessel).

Table 5 presents the value of the ROI indicator and the data used to calculate it.

Table 5. Return on investment indicator for Polish Baltic fleet segments in 2021 (in '000 EUR)

No	Specification	VL0010PG	VL1012PG	VL1218DFN	VL1218DTS	VL1218TM	VL1824DTS	VL1824TM	VL2440TM	Total
1.	Total revenue, of which:	7 396	1 758	438	2 018	1 736	708	6 475	16 723	72 142
1.1	income from landings	6 564	1 417	418	1 974	1 727	540	6 247	16 452	35 339
1.2	other income	363	204	0	0	0	131	35	0	732
1.3	subsidies*	469	137	21	44	10	38	193	271	36 071
2.	Total costs, of which:	8 899	4 259	1 094	1 718	1 585	885	4 205	14 220	36 867
2.1	wages	2 072	1 249	400	469	532	255	1 271	4 734	10 983
2.2	unpaid work	4 177	1 334	298	141	267	105	449	849	7 620
2.3	energy consumption	624	264	138	514	335	192	837	3 128	6 032
2.4	repair and maintenance	384	455	85	173	108	56	434	1 973	3 669
2.5	other variable costs	790	330	63	138	139	119	416	923	2 917
2.6	fixed costs	624	412	94	163	138	114	511	1 400	3 456
2.7	depreciation	229	215	16	121	65	44	286	1 214	2 190
3.	Profit/loss (revenue minus subsidies – total costs)	-1 972	-2 638	-677	256	141	-215	2 076	2 232	-796
4.	Fixed assets (value)	24 325	16 175	5 401	5 110	3 266	3 904	18 190	42 409	118 780
5.	ROI (profit/fixed assets)	-8.1%	-16.3%	-12.5%	5.0%	4.3%	-5.5%	11.4%	5.3%	-0.7%

*not included in ROI calculations

Terms and definitions:

Income from landings –based on data from first-sale documents. In the absence of such documents (this concerns sales values for vessels of less than 8 m in length and cases where certain data relating to vessels over 8 m are incomplete) the value of fish sales was calculated with reference to average annual prices of individual fish species by vessels which submitted first-sale documents, and to data relating to the value of catch taken by the entire fleet.

Other income – additional income from accompanying activities such as tourism or ad-hoc activities.

Subsidies – mostly consists of public support granted to fishing vessel owners under the FISH OP, mainly in the form of compensation payments for temporary cessation of fishing activity and subsidies for vessel modernisation.

Wages – includes gross wages plus benefits.

Unpaid work – estimated value of unpaid work (e.g. by owners and their families).

Energy consumption – covers the consumption of fuel and lubricants by vessels.

Repair and maintenance – covers the servicing of fishing vessels and equipment. Mostly provided as external services (e.g. bookkeeping). This includes costs incurred by vessel owners for the purchase of materials and services for ongoing vessel repairs and renovation. Data are determined on the basis of the RRW-19 statistics form.

Other variable costs – includes expenditure on fishing gear, ice, fish boxes, protective clothing, other materials, crew catering services, port and landing fees.

Fixed costs – costs not related to catch, incurred in respect of applicable fees, property insurance, protection measures, external services (except for renovation), financial costs, other costs, etc.

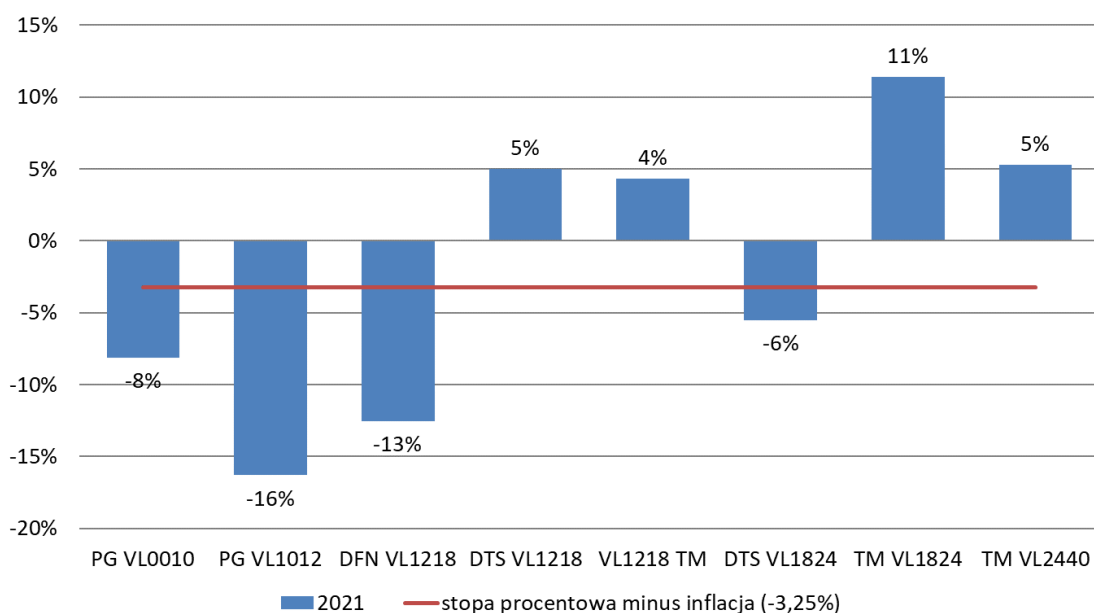
Depreciation – annual depreciation calculated on the basis of accounts, declared by fishing enterprises in RRW-19 forms.

Value of fixed assets – specified separately for each fishing vessel on the basis of a compensation rate obtainable by vessel owners where vessels are withdrawn with public support.

Profit or loss – calculated on the basis of the above data as the difference between income from landings plus other income and total costs; does not include subsidies.

ROI – indicates profit or loss relative to the value of fixed assets.

Figure 1. Return on investment (ROI) indicator for Polish Baltic fleet segments (2021)



Interpretation of ROI indicators

In 2021, for another consecutive year, the return on investment indicator for Baltic fisheries was negative (-0.7%, compared to -1.7% in 2020). Despite its negative value, the indicator remained above the next best alternative which, due to inflation increasing above the long-term interest rate, was also negative (-3.25%)⁷. The improvement in the indicator resulted on the one hand from an increase in income from landings, and on the other hand from a reduction in fishing costs. The increase in the value of landings was caused by higher catches of sprat (+18%), which had a positive impact on the segments comprising larger vessels. The value of catches of freshwater fish, such as zander, perch, bream and roach, also increased due to higher landing volumes and prices. This had a positive impact and improved the economic performance of segment VL0010PG. Total costs in the Baltic Sea fisheries decreased by 1%, mainly as a result of lower wage costs (-3%), depreciation (-24%) and other fixed costs (-14%).

The ROI indicator for segment **VL0010PG** was negative (-8.1%) for another consecutive year (the indicator was -19.4% in 2020 and -7.1% in 2019). Despite a considerable improvement, the indicator was below the reference value. The value of landings in the segment in 2021 was almost 80% (!) higher than the previous year. The increased interest in fishing was due to a reduction in available subsidies, the value of which in 2021 was EUR 470 000, compared to EUR 19.5 million in 2020. With ROI indicators repeatedly lower than expected in recent years, this points to overcapitalisation of the segment.

In 2021, the ROI indicator (-16.3%) for segment **VL1012PG** was significantly less than the next best alternative of investing in fishing capital and was similar to that of 2020 (-16.8%). The segment operates at the highest deficit of all segments. The high negative return on investment indicates a high negative return on invested capital, and therefore an imbalance against available fishing opportunities in the segment.

In 2021, segment **VL1218DFN** had a negative ROI indicator of -12.5%, meaning that, after the segment described previously, it operates at the second highest deficit of the Baltic fleet segments.

⁷ Long-term interest rate for convergence purposes, <https://ec.europa.eu/eurostat/databrowser/view/tec00118/default/table?lang=en>, price index (inflation) - https://ec.europa.eu/eurostat/databrowser/view/irt_lt_mcby_a/default/table?lang=en

Since 2019, it has had a negative double-digit ROI indicator, which points to structural overcapacity in this group of vessels. Although income from landings more than doubled in 2021, the indicator did not improve significantly (1.4 percentage points), confirming the substantial deficit at which the segment operates. The restrictions introduced on salmonid fishing removed one of the segment's key sources of income, causing an 85% drop in income from landings in 2022. Consequently, vessels in the segment are expected to cease activity in 2023.

Segment **VL1218DTS** registered a negative financial performance in 2020 (- EUR 800 000), as a result of which the ROI indicator for the segment deteriorated, reaching a negative value of -10.9% (-1.6% in 2019). In 2021, there was a clear improvement in the indicator, which was 5%, i.e. significantly above the reference value. Any interpretation of the segment's economic situation should take into account the fact that the segment is in the process of reclassifying its activity, with a shift towards pelagic fishing (from the current demersal trawling). This is borne out by the increasing share each year of sprat and herring in total landings (see table 2). The segment's improved performance was the result of a significant reduction in costs, in particular in wages and in repair and maintenance.

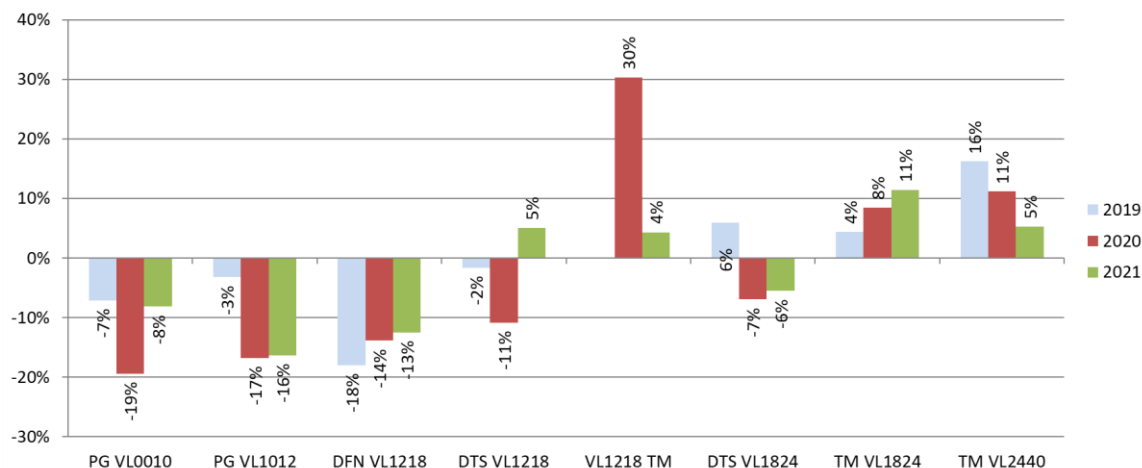
Segment **VL1218TM** is a new segment which was formed in 2020 mainly from vessels previously part of segment VL1218DTS. In the first year for which an analysis was possible (i.e. the segment had more than 10 vessels), the segment had a very high return on investment (ROI indicator of 30.3%). The high level of the indicator was due to the relatively low value of invested capital (due to the small size of the segment) and a high degree of profitability. In 2021, the indicator dropped to 4.3%, thereby staying at a high, safe level. The decline in economic efficiency was primarily caused by a large increase in costs, mainly wages and fuel.

For the last 2 years under review, the ROI indicator for segment **VL1824DTS**, i.e. vessels fishing with demersal trawls, has been negative, i.e. -6.9% and -5.5% in 2020 and 2021 respectively. The indicator was therefore below the next best alternative (-2.2% in 2020 and -3.25% in 2021) which, in accordance with the guidelines, should be interpreted to mean overcapitalisation and therefore the segment should be assessed as imbalanced.

Segment **VL1824TM** comprises vessels using pelagic trawls as their primary gear and which mainly fish sprat and herring. In 2021, the segment registered an improved performance, generating EUR 2 million as compared to EUR 1.5 million the previous year. However, there was little change in the value of fixed assets (the number of vessels in the segment decreased by 1). The increased profit generated by the segment contributed to the improvement in the ROI indicator, which was 11.4%, i.e. the highest of all Baltic fleet segments. During the previous 3 years, the indicator exceeded the reference level, pointing to a safe, balanced situation.

The financial performance of segment **VL2440TM** has been stable, translating into high ROI values. In 2021, the ROI indicator was 5.3%, i.e. significantly above the reference level. As shown in Figure 2, the indicator has been on a downward trend for the last 3 years, which would suggest an eye should be kept on its future development. In 2021, the segment's return on investment remained much higher than the next best alternative, which means the indicator does not point to overcapitalisation.

Figure 2. Changes in the ROI indicator, 2019-2021



6. Ratio between current revenue and break-even revenue (CR/BER) indicator

The CR/BER indicator constitutes a profitability threshold which indicates if revenue is equal to the fixed and variable costs of a segment. Break-even revenue (BER) is the amount of revenue equivalent to all costs, whereas current revenue (CR) is the total operating revenue of a vessel or segment. The CR/BER indicator shows how close a fishing vessel is to becoming financially viable in the short-term. If the ratio is greater than 1, revenue is greater than or equal to fixed and variable costs, meaning that the segment is profitable. If the ratio is less than 1, the fleet/segment does not generate sufficient revenue to cover its costs. A negative CR/BER indicator means core activity is unprofitable and fixed costs cannot be covered (variable costs are higher than the revenue of the segment).

The CR/BER parameter is assessed in order to consider the financial viability of a given segment and the ratio between operating revenue and costs according to their degree of variability. The break-even point can serve as a comparison against revenue obtained. Segments which demonstrate that they can at least fully break even receive a positive assessment ('1').

A long-term downward trend in the BER indicator is a sign of an improved ratio between these key economic parameters (revenue/variable costs/fixed costs) and the increased profit-making potential of the segment.

Table 6 presents the CR/BER indicator calculations by fleet segment for 2021.

Table 6. CR/BER (current revenue/break-even revenue) indicator in 2021 (in '000 EUR)

Specification	VL0010PG	VL1012PG	VL1218DFN	VL1218DTS	VL1218TM	VL1824DTS	VL1824TM	VL2440TM	Total
Total revenue (CR), of which:	7 396	1 758	438	2 018	1 736	708	6 475	16 723	72 142
income from landings	6 564	1 417	418	1 974	1 727	540	6 247	16 452	35 339
other income	363	204	0	0	0	131	35	0	732
subsidies	469	137	21	44	10	38	193	271	36 071
Variable costs, of which:	8 047	3 633	984	1 435	1 382	726	3 408	11 606	31 221
wages	6 249	2 583	698	610	799	360	1 721	5 583	18 603
energy consumption	624	264	138	514	335	192	837	3 128	6 032
repair and maintenance	384	455	85	173	108	56	434	1 973	3 669

other variable costs	790	330	63	138	139	119	416	923	2 917
Fixed costs, of which:	852	627	110	283	204	159	797	2 614	5 646
non-variable costs	624	412	94	163	138	114	511	1 400	3 456
depreciation	229	215	16	121	65	44	286	1 214	2 190
Opportunity cost (not included)*	-791	-526	-176	-166	-106	-127	-591	-1 378	-2 613
Revenue minus subsidies to ensure profitability (BER)	-5 273	-505	-81	1 037	1 019	-1 893	1 743	8 873	41 990
CR/BER	-1.31	-3.21	-5.14	1.90	1.69	-0.35	3.60	1.85	0.86

*As in previous years, the calculation method includes a short-term analysis, meaning that the opportunity cost, although shown in the table, is not taken into account in the calculations.

Terms and definitions:

Fixed costs – costs calculated independently of the catch volume associated with the activities of fishing enterprises.

Variable costs – costs determined on the basis of the catch levels (effects) or fishing effort of fishing enterprises.

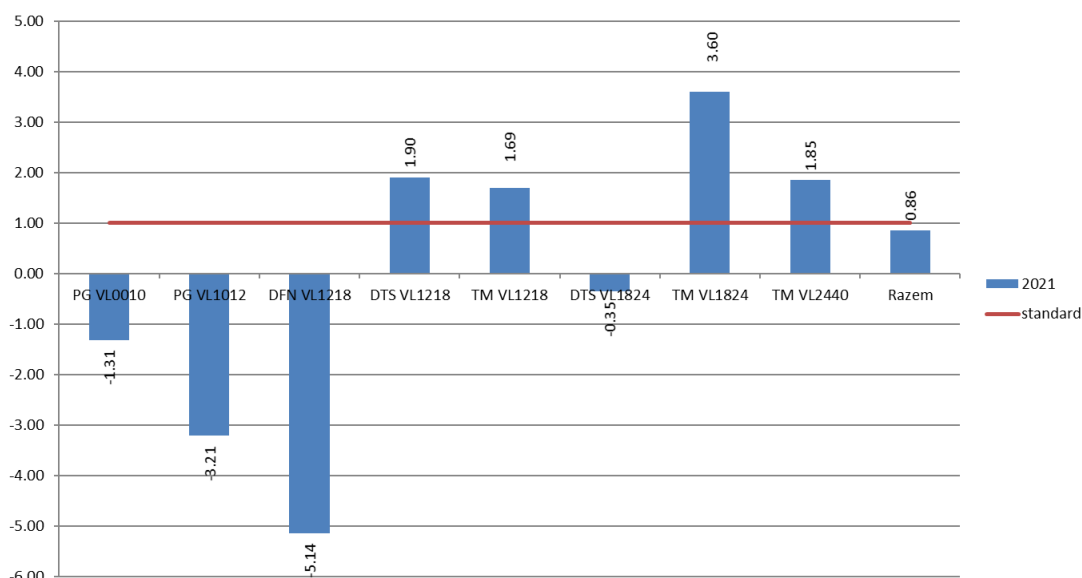
Other fixed costs – costs not directly associated with fishing vessel catch volumes (including port fees, external services, insurance, financial and other costs).

Opportunity cost – should only be included in long-term assessments. This is the cost of using capital for the next best alternative.

CR (current revenue) – total current revenue.

BER (break-even revenue) – revenue which would cover all (fixed and variable) costs and mean a normal profit is generated (0).

Figure 3. CR/BER indicators by fleet segment, 2021 (public subsidies excluded from calculations)



Interpretation of CR/BER indicators

The value of the indicator for the Baltic fishing fleet as a whole deteriorated in 2020 (indicator below the recommended value of 0.7). In 2021, the indicator improved slightly (0.86) but was still below the reference level.

Following a significant deterioration in the CR/BER indicator (-4.97) in 2020 for segment **VL0010PG**, the indicator noticeably improved in 2021. However, losses generated by the segment meant that the indicator remained negative (-1.31). This points to a continued imbalance in the segment. Losses by the segment were brought down to - EUR 1.97 million (from - EUR 4.7 million in 2020). However, total costs were still approximately 20% higher than total income. Wages, including unpaid work, are the primary cost factor for the segment. The segment is able to operate under such poor economic parameters thanks to heavy subsidisation. If subsidies had been included in the income of the segment, the CR/BER indicator in 2020 would have been 3.4, i.e. above the expected level. Bearing in mind the reduced level of subsidisation in 2021, the CR/BER would have remained negative and amounted to -0.76.

In 2021, as in the previous year, the economic performance of segment **VL1012PG** was below the expected break-even level, with losses (-EUR 2.6 million) even slightly exceeding those in 2020. The negative financial performance meant that the CR/BER indicator was also negative (-3.21, as compared to -2.87 in 2020). The deterioration was mainly due to lower income from landings, while costs were kept in check, if not reduced considerably (e.g. labour costs). However, this was not enough to bring the indicator close to the reference value (CR/BER=1). The fact that the indicator has been below the reference level for the last 3 years suggests a clear structural imbalance in the segment, primarily caused by the loss of fishing opportunities for cod.

In 2021, in segment **VL1218DFN**, a further reduction in operating income alongside, in relative terms, a much lower reduction in costs or even an increase in certain cost factors, resulted in an increase in operational losses and, consequently, a negative CR/BER indicator of -5.14 (which was therefore below the reference value). In 2020, the indicator was also negative (-3.03). This was caused primarily by a significant decline in the value of landings, while costs remained at 2019 levels. Segment VL1218DFN suffered as a result of the introduction of restrictions on cod and salmonid fishing. If the restrictions are maintained in the years to come, it is difficult to imagine a return to profitability in the segment.

In 2021, the CR/BER indicator for segment **VL1218DTS** was 1.90, i.e. above the reference value. This represents a significant improvement in the condition of the segment compared to 2020 (CR/BER -0.40). The fact that the indicator is above 1 means that the segment was once again able to cover its variable, fixed and capital costs with its income and is therefore balanced. The return to profitability was possible mainly on account of a significant reduction in operating costs, in particular wages and fuel costs. Fishing vessels in the segment mainly target flounder. However, sprat and herring also feature prominently in the catch composition. Maintaining the positive economic situation in the future will therefore be largely dependent on the available catch limits for those species.

In 2021, as in the previous year, segment **VL1218TM**, which was newly formed in 2020, had a positive CR/BER indicator (above the reference level) of 1.69, compared to 5.22 in 2020. As previously mentioned, the segment under review was formed of vessels which were part of segment VL1218DTS, a consequence of those vessels increasingly targeting pelagic fish (sprat and herring). As 2021 was only the second year of operation for the segment and fishing vessels have not finished migrating from the neighbouring segment, a balance assessment is still premature, in particular as regards the drop in profitability observed in the second year of operation.

In 2021, the CR/BER indicator for segment **VL1824DTS** was negative (-0.35, compared to 0.02 in 2020), i.e. it remained below the desired level of 1, therefore pointing to an imbalance in the segment. The deterioration in the segment's condition was due to a decrease in income from landings (mainly flounder and cod) and an increase in costs, in particular in wages. 2021 was the segment's last year of operation. In 2022 only 3 of the segment's vessels fished mostly by demersal trawling. A further 4 vessels were reclassified to pelagic trawling (i.e. migrated to segment VL1824TM), and 3 ceased activity altogether.

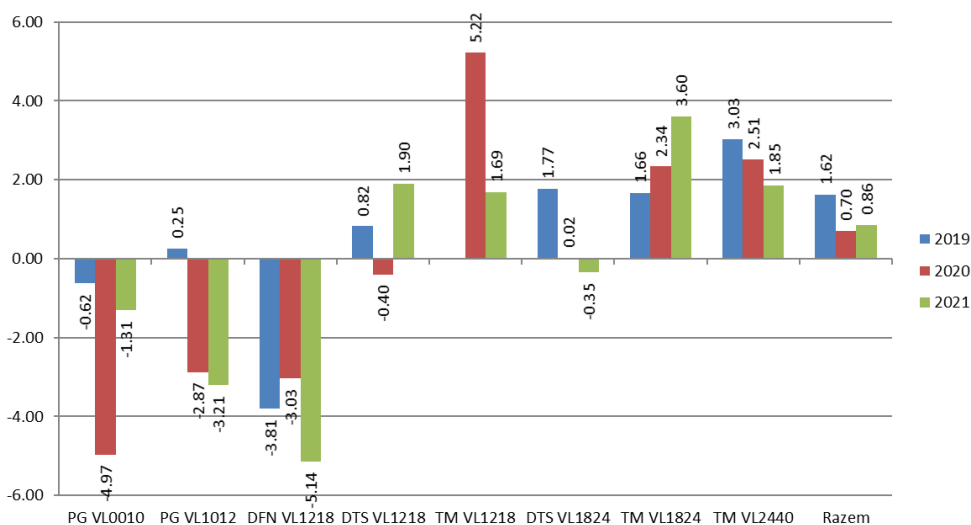
The CR/BER indicator for segment **VL1824TM** improved for another consecutive year, increasing from 2.34 to 3.60. It was therefore above the expected level, indicating that the segment is balanced. As mentioned above, in recent years vessels have transferred to this segment from segment VL1824DTS due to the expected improvement in profitability for vessels forced to give up cod fishing. The improvement in the indicator in 2021 may show that there was no negative impact

on profitability from vessels joining segment VL1824TM from the DTS segment. In 2022, there were 52 vessels in the segment, up from 45 vessels in 2021.

For segment **VL2440TM**, the indicator regarding coverage of variable, fixed and capital costs by income was 1.85 in 2021 (2.51 in 2020), i.e. far higher than the reference value, showing that the segment remains balanced. The economic situation for pelagic trawlers between 24 m and 40 m in length has remained sound for many years and is a consequence of a fishing strategy which is based on pelagic species, the fishing quotas for which have not been subject to negative changes as considerable as for cod or salmon. However, with a substantial cut to the herring TAC in 2021 and 2022 and a continued low TAC in the years which follow, the economic condition of the segment may suffer.

Figure 4 shows the long-term trend in the CR/BER indicator.

Figure 4. CR/BER indicators by fleet segment, 2019-2021



Technical indicators, 2019-2021

7. Vessel utilisation indicator⁸

Data on fleet activity in the Baltic Sea are compiled in Table 7.

⁸As in previous years, the vessel utilisation indicator was calculated on the basis of data on Baltic fleet activity provided by the Fisheries Monitoring Centre (*Centrum Monitorowania Rybołówstwa*) from the ERS database and analyses of those data by the National Fisheries Data Collection Programme (NPZDR).

As in previous years, the term ‘fishing day’ was defined as any continuous period of 24 hours (or part thereof) during which a vessel is present in a given zone and absent from port. For vessels submitting monthly fishing reports, a fishing day was a calendar day. Engine power (kW) and vessel capacity (GT) were determined on the basis of the ERS database for a given day of vessel fishing activity. Consequently, both values are calculated taking into account any changes in vessel parameters during the year. An exception applied to technical data for vessels not found in the ERS database. Where this was the case, values were based on the technical parameters in the fishing vessel register. Furthermore, in contrast to the methodology used to calculate the inactive fleet indicator (which only takes into account the vessels included in the register as at 31 December of the year concerned), the fleet capacity utilisation indicator was calculated taking into account all vessels active during the year (including those which began commercial fishing after 1 January of the year concerned, even if withdrawn from fishing before 31 December). In accordance with the methodology adopted, the actual maximum number of fishing days for the segment concerned was determined taking into account the number of such days reported for the most active vessel in that segment. As in previous years, the theoretical number of fishing days was not calculated.

Table 7. Vessel utilisation statistics by fleet segment, 2020-2022

Year	Segment	No of vessels, power and capacity			Current effort			Maximum theoretical effort (observation data)				INDICATOR	
		No	kW	GT	Days	kWdays	GTdays	Days per vessel ¹	Total days	kWdays	GTdays	kWdays	GTdays
2020	VL0010PG	519	14 413	1 551	23 934	635 471	68 807	270	140 130	3 891 494	418 664	16%	16%
	VL1012PG	120	7 838	1 250	5 511	368 354	58 855	135	16 200	1 058 090	168 715	35%	35%
	VL1218DFN	20	2 468	610	709	88 152	20 880	77	1 540	190 028	46 976	46%	44%
	VL1218DTS	34	4 168	888	2 382	308 523	67 836	139	4 726	579 387	123 403	53%	55%
	VL1218TM	11	1 460	360	927	128 895	27 524	129	1 419	188 340	46 391	68%	59%
	VL1824DTS	9	1 845	567	438	93 076	27 584	123	1 107	226 984	69 741	41%	40%
	VL1824TM	44	10 303	2 643	3 213	750 021	197 792	142	6 248	1 463 057	375 294	51%	53%
	VL2440TM	43	17 730	7 341	4 288	1 806 070	772 831	158	6 794	2 801 327	1 159 878	64%	67%
Total 2020		800	60 225	15 209	41 402	4 178 563	1 242 110	223	178 164	10 398 707	2 409 062	40%	52%
2021	VL0010PG	525	14 777	1 584	42 568	1 199 553	124 429	233	122 325	3 443 062	369 153	35%	34%
	VL1012PG	125	8 273	1 321	7 707	524 044	81 111	155	19 375	1 282 238	204 797	41%	40%
	VL1218DFN	21	2 635	660	1 120	136 456	34 853	101	2 121	266 125	66 618	51%	52%
	VL1218DTS	22	2 778	598	1 898	242 762	53 073	149	3 278	413 958	89 153	59%	60%
	VL1218TM	13	1 838	392	1 082	170 668	33 600	141	1 833	259 191	55 317	66%	61%
	VL1824DTS	10	1 930	573	488	81 937	28 156	124	1 240	239 295	71 052	34%	40%
	VL1824TM	45	10 683	2 699	3 106	737 697	189 029	157	7 065	1 677 154	423 679	44%	45%
	VL2440TM	44	18 060	7 486	4 106	1 717 509	726 418	141	6 204	2 546 525	1 055 526	67%	69%
Total 2021		805	60 974	15 313	62 075	4 810 626	1 270 670	203	163 441	10 127 547	2 335 294	48%	54%
2022	VL0010PG	511	14 242	1 534	25 814	715 569	75 239	147	75 117	2 093 625	225 452	34%	33%
	VL1012PG	112	7 413	1 176	5 003	322 761	52 146	134	15 008	993 342	157 642	32%	33%
	VL1218DFN	18	2 051	476	719	88 029	20 218	85	1 530	174 335	40 423	50%	50%
	VL1218DTS	26	3 451	761	1 814	254 783	56 127	143	3 718	493 493	108 846	52%	52%
	VL1218TM	10	1 459	325	810	126 686	25 572	128	1 280	186 752	41 640	68%	61%
	VL1824DTS	-	-	-	-	-	-	-	-	-	-	-	-
	VL1824TM	52	11 518	3 005	3 084	689 925	185 154	123	6 396	1 416 714	369 670	49%	50%
	VL2440TM	43	17 579	7 347	3 599	1 489 874	633 249	146	6 278	2 566 534	1 072 662	58%	59%
Total 2022		772	57 713	14 625	40 843	3 687 627	1 047 705	142	109 327	7 924 795	2 016 335	47%	52%

In 2022, as in previous years, the kWdays and GTdays indicators were lower than the reference indicator (70%) in all segments. In accordance with the guidelines for interpreting the technical indicators, this means there is **potential technical overcapacity in the Polish Baltic fleet as a whole**. After deteriorating significantly in 2020 (due to a collapse in cod stocks and large-scale aid measures in the form of compensation for temporary cessation of fishing activity), the indicator improved in 2021. In 2022, for the Baltic fleet as a whole, there was a slight change in both indicators, by minus 1 percentage point and minus 2 percentage points respectively.

As in previous years, the lowest (weakest) values among the indicators under review were for the segments comprising the smallest fishing vessels, i.e. segments **VL0010PG** and **VL1012PG**. In 2022, the capacity utilisation indicator for both segments was very low (32-34%). For vessels in segment VL1012PG, this corresponded to a noticeable deterioration in efficiency of 9 percentage points and 7 percentage points for kWdays and GTdays respectively.

There was a slight deterioration in the indicators for segment **VL1218DFN**, by 1 and 2 percentage points respectively. However, the indicator values remained well below the reference level (50%), pointing to technical overcapacity in the segment. The improvement in segment **VL1218DTS** in 2021 (by 6 and 5 percentage points) proved to be short-lived. In 2022, the indicator fell to 52% and therefore remained well below the reference value.

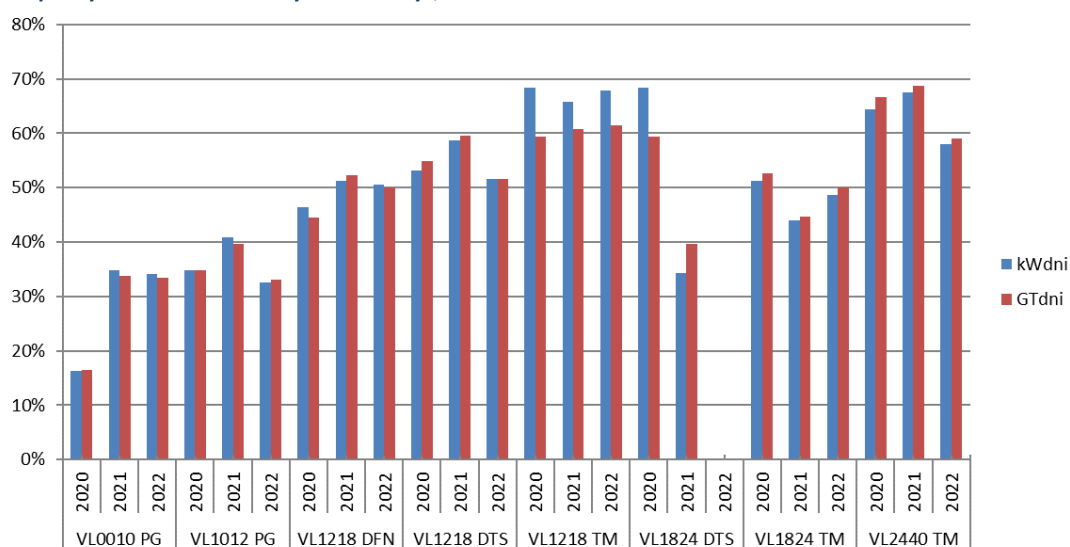
For another consecutive year, the pelagic trawl segment (**VL1218TM**), newly formed in 2020, had the highest kWdays and GTdays indicators of all segments. The former, at 68%, was close to the

reference level. The GTdays indicator was lower (61%). There was very little change in the indicators from 2021 to 2022. The GTdays indicator remained unchanged compared to 2021, while the kWdays indicator improved by 2 percentage points.

In segment **VL1824TM**, the kWdays and GTdays indicators improved by 5 percentage points. However, the increase in efficiency to 49% and 50% made no change to the segment assessment, i.e. that vessels utilise capacity below the reference level.

In 2021, the kWdays and GTdays indicators for segment **VL2440TM** were close to the reference level (67% and 69%). Unfortunately, in 2022, there was a significant deterioration in the indicators, by 9 and 10 percentage points respectively, to 58% and 59%. This was probably caused by the significant reduction in the herring TAC and, as a result, the need for fishing effort to be reduced by most vessels in the segment.

Figure 5. Fleet capacity utilisation in kWdays and GTdays, 2020-2022



8. Inactive fleet indicator

Inactive fleet indicators were calculated on the basis of data for all active and inactive Baltic Sea vessels entered in the EU fishing fleet register by 31 December of the reporting year, pursuant to Commission Implementing Regulation (EU) 2017/218 of 6 February 2017 on the Union fishing fleet register. ‘Active vessel’ means any vessel fishing on at least one day of the reporting year.

Data analysis was carried out by vessel length (VL) in accordance with the Data Collection Framework (DCF) methodology.

In accordance with the guidelines, inactive vessels constitute unused capacity and as such reduce the technical efficiency and capacity utilisation indicators for the entire fleet.

In 2022, the number of inactive vessels in the Polish fishing fleet increased from 19 to 51. They accounted for 6% of all fishing vessels entered in the register (against 2% in 2021). The 18-24 m category had the highest percentage of inactive vessels (13% in terms of the number of vessels), followed by the 10-12 m category (12%).

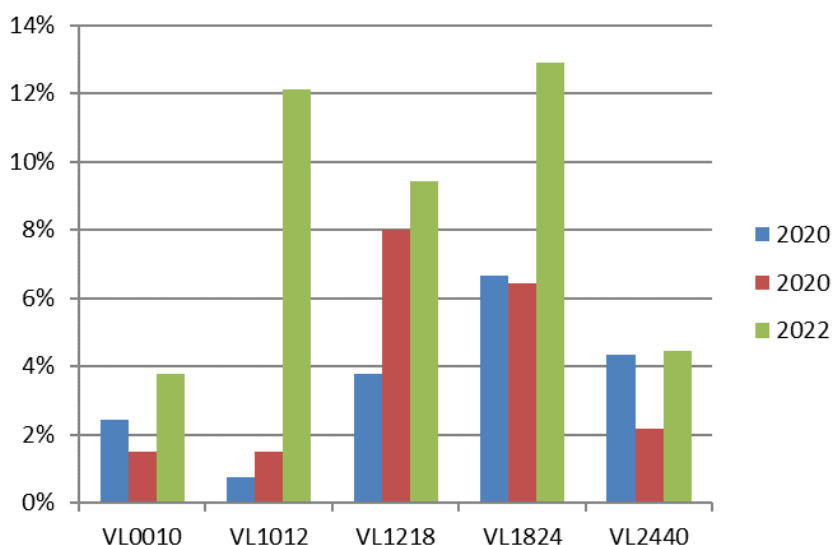
Table 8. Baltic fleet activity statistics, 2020-2022

Year	DCF length	Active			Inactive			Inactive/total		
		No	GT	kW	No	GT	kW	No	GT	kW
2020	VL0010	519	1 559	14 445	13	29	239	2%	2%	2%
	VL1012	130	1 385	8 624	1	8	20	1%	1%	0%
	VL1218	51	1 549	6 636	2	28	140	4%	2%	2%
	VL1824	56	3 285	12 583	4	168	940	7%	5%	7%
	VL2440	44	7 441	17 988	2	290	840	4%	4%	4%
Total 2020		800	15 219	60 276	22	523	2 179	3%	3%	3%
2021	VL0010	525	1 590	14 819	8	18	90	2%	1%	1%
	VL1012	131	1 407	8 713	2	17	126	2%	1%	1%
	VL1218	46	1 419	6 235	4	63	245	8%	4%	4%
	VL1824	58	3 315	12 954	4	216	841	6%	6%	6%
	VL2440	45	7 586	18 304	1	145	420	2%	2%	2%
Total 2021		805	15 317	61 024	19	459	1 722	2%	3%	3%
2022	VL0010	511	1 539	14 332	20	66	601	4%	4%	4%
	VL1012	116	1 246	7 721	16	172	1 102	12%	12%	12%
	VL1218	48	1 421	6 307	5	105	480	9%	7%	7%
	VL1824	54	3 043	11 868	8	458	1 910	13%	13%	14%
	VL2440	43	7 347	17 580	2	239	619	4%	3%	3%
Total 2022		772	14 597	57 807	51	1 039	4 712	6%	7%	8%

The increased number of inactive vessels may be because of vessels being temporarily withdrawn from fishing in order to undergo necessary modifications to change their fishing profile, e.g. from demersal trawling to pelagic fishing, as demonstrated by the decreasing number of vessels in segment VL1824DTS. In the case of smaller vessels (<12 m), it may be partly because of incomplete data in the ERS database (logbooks and monthly reports).

Data on the inactive fleet indicator for the last 3 years (2020-2022) are presented below in the form of a graph. In accordance with the guidelines, under normal conditions, up to 10% of vessels in a fleet segment can be expected to be inactive, which can be due to major repairs, refits, conversions or pending sales and transfers. By contrast, if more than 20% of the fleet segment is recurrently inactive or if the average activity level is recurrently less than 70% of the potential workable activity of comparable vessels, this could indicate technical inefficiency, which may suggest an imbalance. In 2022 this was not the case for any of the length categories in the Polish fleet.

Figure 6. Relative share of inactive vessels by vessel length category, 2020-2022



IX. Action plan

Introduction

In accordance with Regulation (EU) No 1380/2013 of the European Parliament and of the Council on the Common Fisheries Policy⁹, Member States must put in place measures to adjust the fishing capacity of their fleet to their fishing opportunities, taking into account trends and based on best scientific advice, with the objective of achieving a stable and enduring balance between them (Article 22(1)).

The 2022 action plan (in the report for the period 1 January to 31 December 2021) sets out adjustment targets and tools for achieving a balance, including targets which are quantifiable, specific to the fleet segments or fish stocks identified, and justified, e.g. by estimating the impact of the target proposed. It also sets an 8-10 year time period for achieving those targets. The first phase of that period (5 years) will involve adjusting fleet capacity, optimising fishing rights and improving measurement and modelling tools in the fishing industry. The second phase, i.e. the next 3 to 5 years, will be for stabilising the sector and making possible further adjustments.

This part of the report outlines the targets and balance assessment from last year's report and provides updated results on the economic and biological assessment of the fisheries sector for the next available year.

Identification of imbalanced segments and reasons for the imbalance based on the calculated indicators

Last year's action plan stated that in all Polish Baltic Sea fleet segments, there was an imbalance between fishing capacity and available fishing opportunities. The 2023 analysis of the biological, economic and technical indicators showed that only the biological indicators had noticeably improved. Bearing in mind that this improvement concerned only one of the three years necessary for an overall assessment, it did not lead to any major changes in the conclusions of the 2022 report. Despite the improvement, the 3-year average F/Fmsy ratio remained imbalanced. The economic and technical indicators for most segments remained outside safe values.

Table 9. Overall segment balance

Segment	3-year assessment of indicator	Balance status*	Cause of imbalance
VL0010PG	Sustained economic deficit. Variable costs not covered by income. Sustainable harvest assessment partially unavailable. Low fleet capacity utilisation.	Imbalanced	Too many vessels relative to stocks. No cod fishing.
VL1012PG	Sustained economic deficit. Variable costs not covered by income. Sustainable harvest assessment unavailable. Low fleet capacity utilisation.	Imbalanced	Too many vessels relative to stocks. No cod fishing.
VL1218DFN	Deteriorating economic inefficiency. Variable costs not covered by income. Catch imbalance. Improving fleet capacity utilisation.	Imbalanced	Too many vessels relative to stocks. No cod fishing. Low reclassification potential.
VL1218DTS	Transfer of certain vessels to segment VL1218TM.	Imbalanced	Too many vessels relative to stocks.

⁹ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013R1380>

Segment	3-year assessment of indicator	Balance status*	Cause of imbalance
	Deteriorating economic situation. Catch imbalance. Average but improving fleet capacity utilisation.		No cod fishing.
VL1218TM	New segment selected on basis of 2020 data from segment VL1218DTS. Record economic performance.	Imbalanced /partially balanced	Imbalance due to fishing mortality of central Baltic herring exceeding Fmsy.
VL1824DTS	Deteriorating economic situation (level corresponding to coverage of variable costs). Catch imbalance. Very low and deteriorating fleet capacity utilisation.	Imbalanced	Catch imbalance. Deteriorating economic performance.
VL1824TM	Very good, stable economic situation. Systematic improvement in catch but still a catch imbalance. Deteriorating fleet capacity utilisation.	Imbalanced /partially balanced	Imbalance due to fishing mortality of central Baltic herring exceeding Fmsy.
VL2440TM	Very good, stable economic situation. Systematic improvement in catch but still a catch imbalance. Good fleet capacity utilisation.	Imbalanced/partially balanced	Imbalance due to fishing mortality of central Baltic herring exceeding Fmsy.

* 3-year balance assessment, source: 2022 fleet report.

Definition of adjustment targets, tools to achieve a balance and a clear timeframe for implementation

As the indicator analysis – updated for another year – had no major impact on the balance assessment for the Polish fishing fleet, there is no justification for changing the adjustment targets or timeframe for implementation set out in the existing adjustment plan. The 2022 document set out three areas for action over a 5-year period (2023-2027), namely:

- adjusting the fishing capacity of the fleet (reducing the number of vessels in segments with a permanent imbalance);
- optimising fishing rights (TAC allocation system);
- improving measurement and modelling tools in the fishing industry (in terms of biological and economic data).¹⁰

It is assumed that stabilising measures and possible adjustment measures will be taken over the following 3 to 5 years.

Table 10 presents the economic imbalance assessment, updated on the basis of the 2021 fleet performance. The methodology for calculating the total cost surplus, including a necessary profit of 5% per vessel¹¹, remained unchanged compared to the 2022 report (for the period 1 January to 31 December 2021). As data was available for two years for segment VL1218TM, unlike for last year's report this segment was included in the calculations (based on 2020-2021). The other segments are based on 2017-2021.

In accordance with the assumptions and methodology adopted in 2022:

¹⁰ Holistic fleet management modelling and the typical vessel approach are described in greater detail in the 2022 report.


¹¹ For the purposes of determining the reduction, a reasonable profit corresponding to a 5% mark-up on total costs was assumed. The inclusion of a profit mark-up increases the reduction. This factor (with the 5% profit mark-up) was applied as a target under the programme for permanent cessation of fishing activity.

- a total cost surplus above income means that during the period under review the segment was operating at a sustained deficit (especially if the segment was unable to even cover its variable costs); negative values indicate a financial margin to perform even better;
- the positive values in the row ‘Total cost surplus including necessary profit of 5% [%] per vessel’ of Table 10 mean a percentage cost surplus for an average vessel in the segment and show by how much costs must be reduced in order to reach an economic balance. Positive cost surplus values correspond to the segment reduction or target cost required for the segment to achieve an economic balance with zero profit;
- negative values in Table 10 indicate how much lower the costs of an average fishing vessel operating in the segment are compared to the average annual income which can be obtained in the segment.

Table 10. Economic imbalance at the level of an average vessel, by fleet segment

Parameter/segment	VL0010PG	VL1012PG	VL1218DFN	VL1218DTS	VL1218TM*	VL1824DTS	VL1824TM	VL2440TM
Assumed average income from landings [in '000 EUR]	12.3	24.9	35.5	100.6	142.0	149.9	147.6	444.9
Assumed average variable costs of the vessel [in '000 EUR]	15.4	29.2	48.1	80.0	79.8	108.8	79.2	268.3
Assumed average total costs of the vessel [in '000 EUR]	17.0	34.9	58.0	98.5	97.0	152.3	101.3	338.9
Total cost surplus including necessary profit of 5% [%] per vessel	31%	32%	42%	3%	-39%	6%	-39%	-25%

* calculations based on data from 2020-2021.

 Imbalanced segments  Balanced segments

The data on catch value, variable and fixed costs, and the number of fishing vessels for the period 2017-2021, which was used as a basis for the calculations presented in Table 10, can be found in Annexes 1 and 2.

Indication of specific targets for fleet segments with an identified imbalance, i.e. targets which are quantifiable, specific to the fleet segments or fish stocks identified, and justified, e.g. by estimating the impact of the target proposed

In accordance with the methodology adopted for the 2022 report, the total cost surplus (including 5% profit) calculated in Table 10 was translated into an expected reduction in the fishing fleet by segment. The final results of these calculations are presented in Table 11. They show a total reduction in the number of fishing vessels of 213, with most affecting segment VL0010PG (163 vessels) and segment VL1012PG (40 vessels).

Table 11. Reduction in fleet size

Parameter/segment	VL0010PG	VL1012PG	VL1218DFN	VL1218DTS	VL1218TM	VL1824DTS*	VL1824TM	VL2440TM	Total
Number of active vessels (in 2021)	525	125	21	22	13	10	45	44	805
Reduction in number of vessels based on costs with 5% mark-up	163	40	9	1	0	1	0	0	213

* This segment was wound up in 2022 due to the migration of vessels to pelagic segment VL1824TM or due to cessation of fishing activity. The small imbalance in the segment indicates that the situation should not adversely affect the balance assessment of the pelagic segment. Nevertheless, a final assessment will be possible in the next report.

As stated in last year’s report, a permanent reduction in the size of the fishing fleet is expected to:

- increase income per fishing vessel while keeping variable costs proportionate,
- increase efficiency,
- increase fishing vessel activity.

Furthermore, the selection of vessels to be covered by the reduction prioritised the least economically efficient vessels, including, where possible, inactive vessels.

The situation – updated by another year – in terms of the biological balance in segments which affects the complex process of identifying the causes of biological imbalances, is presented below, as indicated in the 2022 report:

- The Polish fleet fishes resources in the Baltic Sea in accordance with EU fishing quotas.
- F/Fmsy ratios are only above 1 for central Baltic herring and western Baltic cod stocks. For the remaining stocks, F/Fmsy ratios are close to 1 (e.g. sprat) or clearly below 1 (western Baltic herring, plaice, eastern Baltic cod).
- In the case of western Baltic cod, Polish catches are marginal (representing fractions of a percent of the Polish catch) and do not present a risk to the stock.
- Where Polish segments have an SHI above 1, this is mainly due to F/Fmsy values for central Baltic herring that are significantly above 1 (ranging from 1.9-1.7 over the period 2020-2022 (against 1.9-1.5 in 2022)).
- The higher SHI for herring was caused by a slightly higher catch than advised by ICES (e.g. Russia sets TACs independently and without consulting the EU) and by the ICES biomass forecasts and catch forecasts for herring which were possibly too optimistic (in terms of Fmsy).
- Every year, ICES issues advice on MSY fishing. However, in the years which follow, actual fishing mortality has proven to be much higher than advised, despite the total Baltic herring catch slightly exceeding catch limits. During the period 2022-2023, the methodology for assessing and forecasting Baltic herring and sprat stocks (benchmark assessment) was revised. Further observation is needed in order to tell whether this revision will resolve the issue of the overly optimistic catch forecasts for central Baltic herring. If it does, F/Fmsy ratios will fall to approximately 1 and Polish TM segments will become fully balanced (long-term average).
- F/Fmsy ratios for eastern Baltic cod are below 1 due to the fishing ban applying to this stock (values above 0 are the result of allowable by-catch). On account of the ban on cod fishing, fleet segments which previously fished that stock are in a difficult situation and should be covered by an action plan. Formally speaking, however, during the period 2020-2022 there was a relatively small imbalance according to the biological indicators.

Indication of which measures are considered effective and appropriate for imbalanced fleet segments, e.g. by illustrating how the proposed measures will achieve the stated objectives and targets.

The 2022 report (for the period 1 January to 31 December 2021) presents the remedial measures and expected outcomes of the remedial action plan looking ahead to 2027. The table below provides a summary and update of this information (mainly in terms of the reduction in the fishing fleet):

Table 13. Expected measures and outcomes of the remedial action plan

Segment	Cause of imbalance	Remedial action/time period	Expected impact
VL0010PG	Too many vessels relative to stocks. No cod fishing.	Reduce fleet segment by 163 vessels over 5 years. Develop a system for allocating Polish TACs in a way which is geared towards achieving biological balance. Examine typical vessels and carry out modelling (3-5 years).	5% return on sales. Reduce fishing effort.
VL1012PG	Too many vessels relative to stocks. No cod fishing.	Reduce fleet segment by 40 vessels over 5 years. Develop a system for allocating Polish TACs in a way which is geared towards achieving biological balance. Examine typical vessels and carry out modelling (3-5 years).	5% return on sales. Reduce fishing effort.
VL1218DFN	Too many vessels relative to stocks. No cod fishing. Low reclassification potential.	Reduce fleet segment by 9 vessels over 5 years. Develop a system for allocating Polish TACs in a way which is geared towards achieving biological balance. Examine typical vessels and carry out modelling (3-5 years).	5% return on sales. Reduce fishing effort.
VL1218DTS	Too many vessels relative to stocks. No cod fishing.	Reduce fleet segment by 1 vessel over 5 years. Develop a system for allocating Polish TACs in a way which is geared towards achieving biological balance. Examine typical vessels and carry out modelling (3-5 years).	5% return on sales. Reduce fishing effort.
VL1218TM	Slight catch imbalance.	Develop a system for allocating Polish TACs in a way which is geared towards achieving biological balance. Examine typical vessels and carry out modelling (3-5 years).	Biological balance SHI<1 (3-year average), SAR =2
VL1824DTS	Segment wound down in 2022.		
VL1824TM	Slight catch imbalance.	Examine typical vessels and carry out modelling (3-5 years). Develop a system for allocating Polish TACs in a way which is geared towards achieving biological balance.	Biological balance SHI<1 (3-year average), SAR =2
VL2440TM	Slight catch imbalance.	Examine typical vessels and carry out modelling (3-5 years). Develop a system for allocating Polish TACs in a way which is geared towards achieving biological balance.	Biological balance SHI<1 (3-year average), SAR =1

The remedial measures for imbalanced fleet segments set out in the action plan will be implemented under the European Maritime, Fisheries and Aquaculture Fund.

Fleet segments will be reduced in size through permanent cessation of fishing activity as referred to in Article 20 of Regulation (EU) 2021/1139 of the European Parliament and of the Council of

7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund and amending Regulation (EU) 2017/1004.

*Fisheries Department
Ministry of Agriculture and Rural
Development*

Annex 1. Catch value, variable costs and fixed costs of the Polish Baltic Sea fleet by segment, 2017-2021

Parameter	Year	VL0010PG	VL1012PG	VL1218DFN	VL1218DTS	VL1218TM	VL1824DTS	VL1824TM	VL2440TM
Catch value	2017	7 124 201	3 403 796	1 502 959	5 429 585		3 950 348	5 293 593	21 409 245
	2018	6 390 590	4 516 810	585 130	5 879 455		4 747 906	5 269 221	21 105 272
	2019	8 050 721	3 137 273	303 862	4 938 809		4 129 595	3 622 150	19 691 484
	2020	3 700 945	1 786 904	173 267	2 493 924	1 682 268	571 332	6 435 194	17 879 613
	2021	6 563 895	1 417 287	417 505	1 973 961	1 726 696	539 606	6 247 265	16 452 298
Variable costs	2017	8 183 216	3 479 780	1 170 613	4 018 024		2 677 923	2 564 987	13 016 609
	2018	9 151 438	3 467 197	600 734	4 276 062		3 511 485	2 483 742	13 516 260
	2019	8 850 343	3 091 081	752 597	4 097 441		2 695 136	2 375 059	10 353 115
	2020	7 932 696	3 760 196	698 648	2 735 843	683 138	564 822	3 842 524	10 213 033
	2021	5 697 838	2 882 264	816 346	1 355 300	1 231 750	667 287	3 155 441	11 129 187
Fixed costs	2017	722 472	610 438	338 219	921 176		961 106	636 743	3 713 360
	2018	788 775	779 156	97 366	881 448		1 831 875	672 641	2 829 926
	2019	964 169	603 303	116 800	1 129 595		824 803	779 898	3 077 944
	2020	786 904	665 841	173 493	599 685	209 272	266 426	1 127 812	3 069 757
	2021	852 297	626 696	110 284	283 369	203 501	158 862	797 374	2 613 567

Annex 2. Number of fishing vessels by segment, 2017-2021

Year	VL0010PG	VL1012PG	VL1218DFN	VL1218DTS	VL1218TM	VL1824DTS	VL1824TM	VL2440TM
2017	509	114	20	49		23	31	44
2018	510	107	10	49		26	32	43
2019	517	106	13	52		25	30	43
2020	525	120	20	34	11	9	44	43
2021	525	125	21	22	13	10	45	44