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## **The Annual Report on the Latvian Fishing Fleet 2023**

### **Summary of the report**

This report is elaborated according to *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 (COM (2014) 545)* (further – Guidelines).

Since 2004, Latvia has fulfilled the existing rules and requirements of the vessel entry/exit regime without any deviations.

The fishing vessel decommissioning process positively affects the balance between the fishing fleet's capacity and the fish resources allocated to Latvia.

The Technical indicators show how much fleet capacity could be reduced without reducing overall fleet output (landings). Therefore, they can be considered the baseline indicator for each fleet segment according to the Guidelines.

The Inactive Fleet Indicator (IFI) for the Latvian offshore fleet segment VL1218 does not exceed the permissible level for the period of the last 15 years. For the segment VL2440, the average percentage of inactive vessels over the last five years is 20%. The measures to balance the fleet segment VL2440, included in Annex VII of the Annual Report on the Latvian Fishing Fleet 2022, are in the implementation phase, and the effect of the segment reduction should be evaluated in the following years.

The average Vessel Utilisation Indicator (VUI) over the last two years for the VL0008 segment is 0.25, while for the VL0812 segment it is 0.44, i.e. not "in balance". However, this could be explained by the low activity level in the small boats segment and by the fishing operations seasonality. In recent years, low activity has also been associated with high interaction periods and damage caused by seals to coastal fishing gears and catches. During the period when seals are observed in a large number, fishermen do not use their fishing gears to avoid the destruction and damage to their property. The VUI for the segment VL1218 for the last two years is close to 1. Therefore, this segment can be considered as "in balance." The VUI for the segment VL2440 increased by 19% in 2023 and reached 0.82, indicating that this segment is "in balance" with the fishing opportunities. The measures to balance the fleet segment VL2440 are in the implementation phase, and the effect of the segment reduction should be evaluated in the following years.

Following the recommendations and applying the interpretation proposed in the Guidelines for the biological indicator - Sustainable Harvest Indicator (SHI) - it can be concluded that:

- for the VL2440 trawler segment in the Baltic Sea (SD 25-32), which mainly exploits the sprat stock with by-catches of herring, the weighted average SHI value for the VL2440 trawler segment in 2022 is just above "1", which means that the segment is practically "in balance between fleet capacity and fish resource potential";
- for two segments (trawlers VL1218 and VL2440) in the Gulf of Riga targeting herring with by-catch of sprat, the weighted average value of the SHI is 1.00 and it should be concluded that these trawler segments are in a state of "balance between fleet capacity and fishing opportunities".

In accordance with the methodology proposed in the Guidelines, the SHI biological indicator has not been calculated for segments VL0008 and VL0812 due to the lack of quantified parameters and scientific advice for the stocks included in the mixed catch composition of coastal passive gear fisheries.

Four Baltic Sea fleet segments were selected and included in the analysis to assess the achievement of balance between fleet capacity and fishing opportunities in Latvian fisheries from 2018 to 2022. For each fleet segment, two economic indicators were calculated to assess whether the fleet segment is economically sustainable in the long and short term.

The Return on Investment (ROI) indicator shows the profitability of investment. A positive ROI and higher than the low-risk long-term interest rate indicates a positive return from investment and suggests that extraordinary profits are being made, thus showing a sign of economic undercapitalisation. In 2022, compared with 2021, the VL1218 and VL2440 segments showed an increase in the value of the ROI indicator - reaching 51% and 56%, respectively, which characterizes a cost-effective activity of these segments. The two coastal segments (VL0008, VL0812) show a positive ROI in 2022, indicating a profitable fishery in the long term. The detailed ROI calculations for each fleet segment and conclusions are presented in the section 7.3.1 and Annex IV.

The second economic indicator, the Ratio of Current revenue to Break-even revenue (CR/BER), reflects the financial ability of companies in each fleet segment to continue operating vessels on a day-to-day basis. The VL2440 trawler segment operating in the Baltic Sea offshore zone shows a positive CR/BER ratio of more than 1 from 2018 to 2022, which characterises the profitability of the segment in the short term. The average value of the CR/BER indicator for the VL2440 trawler segment in the period 2018-2022 is 1.85, while for the VL1218 trawler segment it is 6.5, which characterises the profitability of the segments in the short term. In 2022, the CR/BER indicator for the VL0008 and VL0812 vessel segments is higher than 1, indicating, that sufficient revenues are generated to cover variable, fixed and capital costs. In 2022, the Latvian fishing fleet as a whole improved its profitability in the short term. It reached the highest indicator values during the period, generating sufficient revenues to cover variable, fixed, and capital costs, indicating that the fleet is profitable and may be undercapitalized. The detailed calculations and conclusions are presented in section 7.3.2 and Annex V.

In this report, the following categories of vessels have been excluded from the analysis of the corresponding indicators:

- vessels over 40 meters operating in the Atlantic (areas 27 and 34) due to the limited number of vessels and the confidentiality of the data;
- part of the coastal vessels listed in the Fishing Fleet Register, which are not involved in commercial fishing and fish only used for own consumption.

### **Opinion of MS on balance of fleet capacity with fishing opportunities**

Latvia continues strictly and fully apply the existing rules of the Common Fisheries Policy for the entry/exit regime of the Community fishing fleet. The Fisheries Department (FD) of the Ministry of Agriculture requires that the vessel or vessels of equal or higher capacity be withdrawn from the fishing fleet without public support before the new vessel or vessels are registered. Since 1 May 2004, a total of 400 fishing vessels have been decommissioned and withdrawn from the Baltic Sea fleet. This process has positively affected the balance between the capacity of the fishing fleet and the fish resources allocated to Latvia. The measures to balance the fleet segment VL2440, included in Annex VII of the Annual Report on the Latvian Fishing Fleet 2022, are in the implementation phase and the effect of the reduction of the segment should be evaluated in the following years.

## Section A

### 3.1. Description of the fleets

#### General Description of the Latvian Fishing Fleet

The Latvian fishing fleet is historically divided into three major groups: High Sea vessels, Baltic Sea (including the Gulf of Riga) offshore vessels and coastal fishing vessels. All fishing vessels flying Latvian flag are registered in ten Latvian ports.

**Table 1. The Latvian Fleet Segmentation for the 2023**

Fleet segment	% from total No of vessels	% from total GT	% from total kW
High Seas	1.1	74.1	52.5
Baltic Sea offshore	6.3	22.4	33.6
Baltic Sea coastal	92.6	3.5	13.9

On 31st of December, 2022 the Latvian fishing fleet contained 645 vessels with total fleet engine power 38063 kW and overall gross tonnage 21806 GT, but on the 31st of December, 2023 the Latvian fishing fleet contained 662 vessels with total fleet engine power 39327 kW and overall gross tonnage 22058 GT (Table 3).

### 3.2. Link with fisheries

#### High Sea Fleet

The segment is represented by 7 big vessels over 40 meters. These vessels contribute only 1.1% to the total vessel number but cover 74.1% of the total GT and 52.5% of the total KW, respectively.

In 2023, vessels in this segment performed their fishing activities in the waters governed by the North East Atlantic Fisheries Commission (NEAFC) and the Fishery Committee for the Eastern Central Atlantic (CECAF).

The main fishing gears for these vessels were midwater and bottom otter trawls and shrimp trawls.

The target species in the NEAFC area were northern shrimp and Atlantic cod, and in the CECAF area, Atlantic horse mackerel and mackerel. This fleet segment constituted about 41.6% of the total Latvian catch in 2023.

#### Baltic Sea (including the Gulf of Riga) Offshore Fleet

This fleet group consisted of 42 fishing vessels (on the 31st of December, 2023) with an overall length from 12 to 40 m LOA (Length overall). A number of vessels in this segment was 6.3% of the total Latvian fishing fleet, and it contributed 22.4 % to total GT and 33.6% to total kW.

Vessels of this group operate only in the Baltic Sea (including the Gulf of Riga) offshore waters in the International Council for the Exploration of the Sea (ICES) subdivisions (SD) 22 – 32.

The main fishing gear for these vessels is midwater otter trawl targeting for sprat and herring. This fleet segment constitutes about 56% of the total Latvian catch in 2023.

**Table 2. Description and segmentation of the Baltic Sea (including the Gulf of Riga) offshore fleet in 2023**

Length	Type of gear	Number of vessels			Total fleet catch in 2023 (%) of catch quota		
		31.12.2022	Active in 2023	31.12.2023	Cod	Sprat	Herring
VL1218	Trawler	9	9	9	0	2	26
VL2440	Trawler	31	26	33	0	98	74

### Coastal Fishing Fleet

The sector is represented by 613 fishing boats with an overall length equal to or less than 12 m, which constitute the majority of the vessel number, or 92.6% of the total, but contribute only 3.5% to total GT and 13.8% to total kW.

The coastal fleet segment is very important for the socio-economic reasons of the Latvian coastal regions along the Gulf of Riga and the Baltic Sea coast. Small-scale fishing is the main source of livelihood and employment for residents of remote coastal communities.

However, the catches of the coastal fishing fleet are relatively small (about 4.1% of the total Baltic Sea catches), and these include Baltic herring, round goby, flounder, smelt, as well as vimba, bream, garfish, perch, and other non-TAC species, mainly caught with fixed passive gears. This fleet segment accounted for around 2.4% of Latvia's total catch (including High Sea fishery) in 2023

Compared to the previous Latvian fleet report, there are changes in the coastal fleet segment (VL0010). In accordance with Commission Decision (EU) 2021/1167, the segmentation of vessels less than 12 metres in length should be modified and split into two segments as follows:

- VL0008PGP - coastal vessels less than 8 metres in length;
- VL0812PGP - coastal vessels between 8 and 12 metres in length.

In 2023, coastal fishermen actively and regularly used 161 boats for the commercial fishing and 5 boats - for self-consumption fishing, registered to the companies. Some boats (3) were used for both fisheries. Other fishing boats fished episodically or were used as support boats (Table 3).

**Table 3. Description and segmentation of the Baltic Sea coastal fleet in 2023**

Length	Type of gear	Number of vessels				
		31.12.2022	Active in 2023 (self-consumption)	Active in 2023 (self-consumption + commercial)	Active in 2023 (commercial)	31.12.2023
VL0008	PGP	532	5	3	120	547
VL0812	PGP	66	0	0	41	66

Vessels on the fleet register that fish for self-consumption are subject to the one gear rule (a maximum of 1 net or 1 herring net or 1 fyke net or 100 hooks can be used at any one time) and the marketing of these catches is prohibited.

The decommissioning plan for the coastal fleet has been achieved in terms of GT and kW, but it has not been fully achieved in terms of the number of vessels. As only passive gears are used in coastal fisheries, the balance in terms of the number of vessels is more important than in terms of GT and kW.

### 3.3. Development in the fleets

An increase in GT and kW is observed in 2023, linked to the entry into the fleet of a few vessels over 23 metres, while the increase in the number of vessels is mainly due to the entry into the fleet of small coastal vessels using the unused/reserved capacity (Table 4).

**Table 4. Evolution of Latvian fishing fleet (from 1st of May, 2004 to 31st of December, 2023)**

Date	Number of vessels	GT	kW
Census: 1 <sup>st</sup> of May, 2004	898	44449	74320
31 <sup>st</sup> December, 2022	645	21806	38063
31 <sup>st</sup> December, 2023	662	22058	39327
Difference between CEN date and 31 <sup>st</sup> of December, 2023	236	22391	34993

#### Section B Statement of compliance with entry/exit scheme and with level of reference

In 2023 Latvia fully respected capacity limitations in terms of GT and kW according to the *Commission Regulations 1438/2003* and *916/2004*. National legislation prescribes that all new intentions for entries – purchase or construction of any fishing vessel shall be agreed before with the relevant authorities (the Fisheries Department (FD) of the Ministry of Agriculture).

**Table 5. Management of entry/exit regime on 31.12.2023**

		GT		kW	
1	Capacity of fleet on 1st May 2004	<b>GTFR</b>	44449	<b>kWFR</b>	74320
2	Capacity level for the application of entry/exit regime	<b>GT04</b>	56555	<b>kW04</b>	83930
3	Entries of vessels of more than 100 GT financed with public aid	<b>GT100</b>	0	<b>kW100</b>	0
4	Other entries or capacity increases (not included in 3 & 5)		61266		79868
5	Increases in tonnage GT for reasons of safety	<b>GTS</b>	0	-	-
<b>6</b>	<b>Total entries (3+ 4 + 5)</b>		<b>61266</b>		<b>79868</b>
7	Exits before 1/1/2007 financed with public aid	<b>GTa1</b>	3134	<b>kWa1</b>	7441
8	Exits after 1/1/2007 financed with public aid	<b>GTa2</b>	9145	<b>kWa2</b>	22487
9	Other exits (not included in 7 & 8)		71398		84933
<b>10</b>	<b>Total exits (7 + 8 +9)</b>		<b>83657</b>		<b>114861</b>
11	Power of engines replaced with public aid conditional to power reduction	-	-	<b>kWr</b>	0
12	Capacity of the fleet on 31.12.2023 (1 + 6 – 10)	<b>GTt</b>	22058	<b>kWt</b>	39327
13	Fleet ceiling on 31.12.2023		44689		54002

Line 4 is calculated as:  $4 = (12 - 1) + 10 - (3 + 5)$

Line 13: Ceiling GT =  $2 - 35\%$  3 – 98.5% 7 – 96% 8 and kW =  $2 - 35\%$  3 – 7 – 8 – 20% 11 % 11

## Section C

### 5.1. Information on general level of compliance with the fleet policy

In 2023, as before, the main organizations responsible for the management of the national fleet were:

- The Fisheries Department (FD) of the Ministry of Agriculture with responsibilities:
  - Elaboration of the national Fisheries Policy and functioning of the Latvian Fisheries Integrated Control and Information System (LFICIS);
  - Supervision of implementation of the national fisheries management measures, including national fishing fleet ceiling levels and the fishing fleet capacity adjustment plans;
  - Implementation of the fisheries policy in Latvia (issuing special fishing permits for fishing vessels according to the EU requirements, authorization for entry/exit of the fishing vessels into the Fishing Fleet Register etc.);
  - General management of fishing licenses and fishing authorization for offshore fishing vessels.
- The State Environmental Service (SES) of the Ministry of Environment and Regional Development is responsible for control and enforcement of the fishing activities and vessel monitoring system (VMS) reporting;
- The Latvian Ship Register (LSR) of the Maritime Administration of the Ministry of Transport is responsible for registration of the vessels (also the fishing vessels) into the common ship register;
- The Rural Support Service (RSS) under the supervision of the Ministry of Agriculture is responsible for management of projects implementation with respective national and EU public support from the European Maritime and Fisheries Fund.

### 5.2. Summary of strengths and weaknesses of the fleet management system

Strengths of the fleet management system:

- Development of the LFICIS provided close collaboration between above mentioned Latvian fishing fleet management institutions, all relevant data in the system in real time is available for the competent authorities;
- The Institute of Food Safety, Animal Health and Environment “BIOR” has to provide and obtain precise information about stock conditions and fleet fishing effort in the Baltic Sea and the Gulf of Riga;
- Functioning of the fishing fleet register is supervised by FD that provides complete and precise data on all concerned vessels;
- Good and practically functioning vessel entry/exit management scheme is established in Latvia.

Weaknesses of the fleet management system:

- Information entered in LFICIS was accessible for changes to correct the previously entered data; however, on the other hand for justified reasons under proper management by competent authorities the data normally could be slightly changed within the time to adjust with real status.

### 5.3. Plan for improvements in fleet management system

In 2023 still some improvements were done in the LFICIS to comply with all the requirements set by the EU Fisheries control regulation (EC 1224/2009). This ensured not only improvement of the fisheries data quality by the crosschecks and data validation but also facilitates the work efficiency of the personnel working with LFICIS.

At this stage massive work is done to develop and put in place the new UN/FLUX standard for the snapshot reporting in Latvia. It is main priority to deliver UN/FLUX standard reporting as soon as possible in order to comply with the EU requirements.

## **Section D**

### **Information on changes of the administrative procedures relevant to fleet management**

There were no significant changes in 2023 in the administrative procedures. However, it should be mentioned that the work with LFICIS improvements and development is still continuing. For the years 2012-2023, the Fisheries Department (FD) invested quite a lot in development of LFICIS to improve reliability of the data, to make easier its processing and routine work, to improve the forming of the required reports.

## **Section E**

### **Estimation and discussion of balance indicators**

#### **7.1. Technical indicators – Vessel Use Indicators**

Technical indicators for the Latvian fishing fleet have been calculated according to the guidelines. These indicators show how much fleet capacity could be reduced without reducing the total output of the fleet (landings). The technical indicators can be considered as a baseline indicator for each fleet segment. The maximum number of days at sea was calculated as follows: the average number of days at sea of the top 10 most active vessels in the fleet segment in a given year.

The following categories of fishing vessels were excluded from the analysis:

- vessels over 40 meters operating in the Atlantic (ICES area 27 and 34) due to the limited number of vessels and data confidentiality;
- coastal vessels listed in the Fleet Register not engaged in commercial fishing and involved only in fishing for self-consumption.

##### **7.1.1. The Inactive Fleet Indicator – IFI**

The share of inactive vessels in the total fleet has been calculated in terms of number of vessels, GT and kW. To determine the number of inactive vessels by length class, the total number of vessels registered in the fleet register on 31 December of each year and all active vessels in that year were taken into account. The values of the Inactive Fleet Indicator (IFI) for the period 2009-2023 are shown in Annex I.

The IFI indicator for the segment VL1218 shows zeros for the last seven years as there were no inactive vessels in this segment. For the segment VL2440, the average value of the IFI indicator over the last five years is 20%. The measures to balance the fleet segment VL2440, included in Annex VII of the Annual Report on the Latvian Fishing Fleet 2022, are in the implementation phase and the effect of the reduction of the segment should be evaluated in the following years.

##### **7.1.2. The Vessel Utilisation Indicator – VUI**

The Vessel Utilisation Indicator (VUI) characterises the ratio between the actual effort deployed and the maximum effort that could be deployed by the fleet. All active vessels in the Baltic Sea that had a licence and fished at least one day per year were included in the calculation. The values of the VUI, also known as the Vessel Utilisation Ratio (VUR), are given in Annex II.

**The VL1218 trawler segment** operates mainly in the Gulf of Riga targeting Baltic herring. The number of vessels in 2023 is 72% lower than in 2006. Considering that the VUI value for the last seven years is higher than 0.9, it can be said that the capacity of this segment is in balance with the fishing opportunities.

**The VL1824 net and trawler segment** has not existed since 2017. According to the clustering rules (Regulation (EU) 2016/679), the remaining net vessel and the new trawler (inactive in 2023) have been included in the VL2440 trawler segment. The two remaining VL1824 trawlers, which historically operated in the Gulf of Riga, have been included in the VL1218 segment.

**The VL2440 trawler segment** operates mainly in ICES SD 25-32, targeting Baltic sprat with by-catches of Baltic herring. The number of vessels in 2023 is 65% lower than in 2006. The VUI for this segment increases to 0.82 in 2023 after four years period below the 0.7 threshold. The measures to balance the fleet segment VL2440, included in Annex VII of the Annual Report on the Latvian Fishing Fleet 2022, are in the implementation phase and the effect of the reduction of the segment should be evaluated in the following years.

**Segment VL0008, small-scale coastal fishing**, has been calculated for commercial fishing only. Coastal fishing uses various static gears such as nets, traps, lines and seines. The average activity level for this segment was around 25% of the potential in 2022-2023. In general, this indicates that for a significant part of the coastal fishermen, fishing is only a part of their activities. This could also be related to the lower availability of fish resources and their seasonality in the coastal areas. Low activity has also been associated with high interaction periods and damage caused by seals to coastal fishing gears and catches. During the period when seals are observed in a large number, fishermen do not use their fishing gears to avoid the destruction and damage to their property. Although the utilisation rate of small boats VL0008 is consistently at a very low level, this segment is very important in socio-cultural terms as a traditional activity for the population of coastal settlements.

**Segment VL0812, small-scale coastal fishing**, has been calculated for commercial fishing only. Various static gears such as nets, traps, lines and seines are used in the coastal area and the average activity level for this segment was around 43% of the potential in 2022-2023. This is related to the partial activity of the coastal fishermen and to the lower availability of fish resources and their seasonality in the coastal areas, as well as the high activity of seals. This segment is of great socio-cultural importance as a traditional activity for the population of coastal settlements.

## Summary

In segments with a fleet of 10 or fewer vessels, any change in a vessel or enterprise's fishing strategy could significantly alter the technical indicators' values. For the Latvian fleet, the segment of trawlers VL1218 can be considered small in number of vessels, and any conclusion of this balance should be treated with caution and verified over time.

In 2023 the VUI for segment VL1218 is equal to 1 and it could be said that the capacity of this segment is in balance with the fishing opportunities. The VUI value for segment VL2440 improves to 0.8. The measures to balance the fleet segment VL2440 included in Annex VII of the Annual Report on the Latvian Fishing Fleet 2022 are in the implementation phase and the effect of the reduction of the fleet needs to be evaluated in the following years.

The VUI for segments VL0008 and VL0812 is at the low level of previous years, which could be explained by low activity and seasonality. In the following years, a closer look at the development of this segments in relation to the available fish resources should be made.



## 7.2. Biological indicators

### 7.2.1. Biological indicator Sustainable Harvest Indicator – SHI

The Sustainable Harvest Indicator (SHI) was defined for three segments of the Latvian fishing fleet, which account for about 96% of the total Latvian catch in the Baltic Sea. The SHI values for the period of 2008-2022 and two fishing areas (the Baltic Sea proper and the Gulf of Riga) were calculated for the following fleet segments:

- VL2440 trawlers in SD 25-32 (excluding SD 28.1) targeting sprat (88% of the mixed sprat/herring catches);
- VL1218 trawlers in the Gulf of Riga (SD 28.1) targeting herring (92% of the mixed herring/sprat catches);
- VL2440 trawlers in the Gulf of Riga (SD 28.1) targeting herring (89% of the mixed herring/sprat catches).

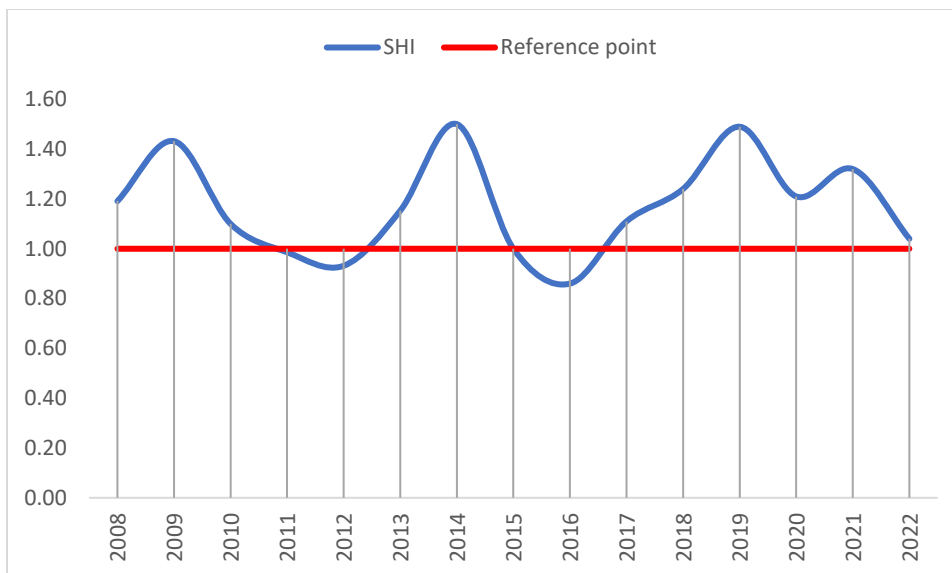
The values of the current fishing mortality rate ( $F_c$ ) and fishing mortality rate at maximum sustainable yield ( $F_{msy}$ ) for the stocks exploited by the Latvian fishing fleet were obtained from the Report of Baltic Fisheries Assessment Working Group (*ICES. 2023. Baltic Fisheries Assessment Working Group (WGBFAS). ICES Scientific Reports.5:58.606pp. <https://doi.org/10.17895/ices.pub.23123768>*):

- Sprat in SD 22-32 –  $F_c=0.35$ ,  $F_{msy}=0.34$ ;
- Herring in SD 25-27, 28.2, 29 and 32 –  $F_c=0.23$ ,  $F_{msy}=0.21$ ;
- Herring in SD 28.1 (Gulf of Riga herring) –  $F_c=0.28$ ,  $F_{msy}=0.28$ ;
- There are no data for the SHI calculation for the Baltic cod stock. Also, it is not anymore, the target species for any of the Latvian fishing fleet segment.

The calculated SHI indicator values for all species and fleet segments are presented in the Annex III. A value of the SHI biological indicators below “1” is usually considered to indicate a sustainable exploitation of the stock, and a value above “1” is usually considered to indicate overfishing of the stock.

**For the segment VL2440 trawlers in SD 25-32 (excl. 28.1)**, SHI values were calculated separately for the herring and sprat stocks and a weighted average SHI value was calculated for the segment (Figure 1, Annex III). The average SHI values for this segment fluctuate around the reference point “1” over the period 2008-2022, and depend mainly on the ratio of  $F_c/F_{msy}$  values for sprat, which accounts for most of the mixed catches (around 90%). Catches of herring in this segment should be considered as a permanent by-catches in the sprat fishery.

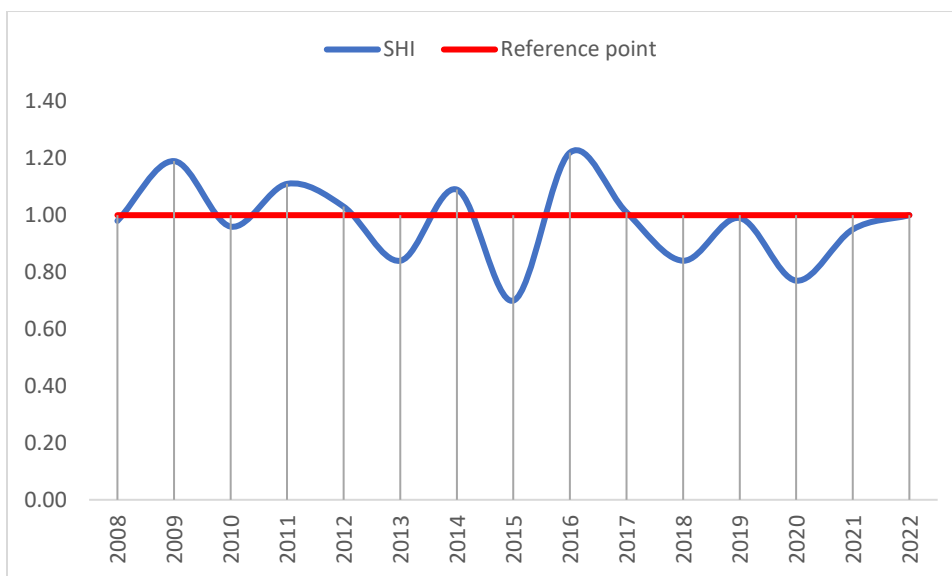
The separate SHI indicator for herring SD 25-32 (excl. 28.1) decreased in 2022 (1.1) compared to 2021 (1.38). The separate SHI indicator for sprat stock SD 22-32 also shows a decrease to level "1" in 2022 compared to 2021 (1.31). As a result, the weighted average SHI value for the VL2440 trawler segment in 2022 is almost equal to "1", which means that the segment is close to "balance between fleet capacity and fish resource potential".



**Fig. 1.** Changes in the SHI biological indicator over the period of 2008-2022 for the VL2440 trawler segment in the Baltic Sea.

**For the trawler segments VL2440 and VL1218 in the Gulf of Riga**, the share of herring in mixed catches is similar for both segments considered (87-92%) and catches of sprat are recorded as by-catch. The long-term dynamics of the SHI parameter for these segments show a rather large fluctuation around the reference point “1” for the period of 2008-2022 (Figure 2, Annex III).

In 2022, the weighted average value of the SHI parameter for both trawler segments in the Gulf of Riga was determined to be 1.00, which fully corresponds to the reference point. This means that the segments (VL2440 and VL1218) in the Gulf of Riga could be considered in a state of "balance between fleet capacity and fish resource potential".



**Fig. 2.** Changes in the biological indicator SHI over the period of 2008-2022 for the segments of trawlers VL1218 and VL2440 in the Gulf of Riga.

Following the recommendations and applying the interpretation proposed in the Guidelines, it can be concluded that:

- for the segment of trawlers VL2440 in the Baltic Sea proper (SD 25-32, excluding 28.1), which mainly exploits the sprat stock with by-catches of herring, the SHI value (1.04) indicates the state of "balance between fleet capacity and fish resource opportunities";
- for two segments (trawlers VL1218 and VL2440) in the Gulf of Riga targeting herring and sprat (by-catch), the weighted average value of the SHI is 1.00 and it should be concluded that these trawler segments in the Gulf of Riga are in a state of "balance between fleet capacity and fishing opportunities";
- biological indicators for the Baltic cod stock have not been assessed due to the total ban on targeted fishing for cod in the eastern part of the Baltic Sea.

### **7.3. Economic Indicators**

The methodology used for the economic analysis has been proposed in Guidelines.

To assess the achievement of balance between fleet capacity and fishing opportunities in Latvian fisheries from 2018 to 2022, four Baltic Sea fleet segments (VL0008; VL0812; VL1218; VL2440) were selected and included in the analysis. For each fleet segment, two indicators proposed in the Guidelines were calculated to assess whether the fleet segments are economically sustainable in the long and short term.

The economic indicators show the extent to which a fleet is economically over- or undercapitalised in both in the short and long term. To assess the long-term profitability of the fleet, the Return on Investment (ROI) indicator has been calculated. The second indicator used - the ratio of current revenue to break-even revenue (CR/BER) - reflects the financial ability of companies with vessels in a given fleet segment to continue operations on a day-to-day basis. The indicator characterises the economic situation in the short term.

The following categories of vessels have been excluded from the analysis of the corresponding indicators:

- vessels over 40 meters operating in the Atlantic (areas 27 and 34) due to the limited number of vessels and the confidentiality of the data;
- part of the coastal vessels listed in the Fishing Fleet Register, which are not involved in commercial fishing and fish only for own consumption purposes.

For the calculations and analysis, the data collected within the frame of Data Collection Programme (implemented under *Reg. (EU) 2017/1004; Commission Delegated Decision (EU) 2021/1167* Table 7 Fleet economic variables and Table 6 Fishing activity variables) have been used.

The economic indicators have been calculated for the active Baltic Sea fishing fleet by economic segments provided in Table 8 *COM (EU) 2021/1167*. All commercial vessels operated in the coastal zone were included in the segment VL0010.

According to the recommendations of the workshop on capital value estimation (Salerno, 7-10 October 2019), the net profit from 2018 was calculated based on the cost of capital and capital value provided by the perpetual inventory method (PIM), which provides a more accurate economic assessment from a macro perspective. Long-term interest rates for the calculation of indicators have been taken from the European Central Bank as the average Latvian interest rate for the last five years, available at: <https://data.ecb.europa.eu/data/datasets/IRS/IRS.M.LV.L.L40.CI.0000.EUR.N.Z>

### 7.3.1. Return on Investment (ROI)

Return on investment (ROI) shows the profitability of the investment and is defined as net profit after depreciation of the capital stock, divided by the capital value of the fleet. Subsidies are not included in the calculation. According to the guidelines, a positive ROI greater than the low-risk long-term interest rate indicates a positive return on investment and suggests that exceptional profits are being made, which is a sign of economic undercapitalisation. Values of ROI that are positive but less than the low-risk rate would give negative values for the indicator, indicating that in the long run it would be more beneficial to invest elsewhere, which is a sign that the fleet is likely to be overcapitalised and therefore economically inefficient. Negative ROIs may themselves indicate economic overcapitalisation. The ROI results and calculations for each fleet segment are presented in Table 6 and Annex IV.

**Table 6. Return on Investment (ROI – risk-free long-term interest rate %)**

Fleet Segments	2018	2019	2020	2021	2022
VL0008 PGP	31	-34	125	71	40
VL0812 PGP					290
VL1218 TM	110	-409	402	297	447
VL2440 TM	171	178	249	175	273

#### Application and interpretation

During the period analysed from 2018 to 2022, the ROI indicator shows stable positive values for the segment VL2440 trawlers, which characterises a cost-effective segment activity. This is mainly due to the fact that the target species of the segment are sprat and herring, which provide the necessary turnover for the segment. Catches of sprat and herring contribute 49% and 47% respectively to the total volume of landings in Latvia and 51% and 41% respectively to the total value of landings in the Baltic Sea in 2022. The 56% increase in the ROI indicator in 2022 for the VL2440 trawler segment could be explained by an increase in the available quota of sprat and herring by 13% and 25% respectively and by an increase in average prices by 17% and 12% respectively.

The ROI indicator for the segment VL1218 trawlers operating in the Gulf of Riga was positive during the analysed period from 2018 to 2022, except for 2019. The negative ROI in 2019 was observed due to the sharp increase in total operating costs by 48%. The 51% increase in the ROI indicator in 2022 for the VL1218 trawler segment could be explained by an increase in the available quota of herring in the Gulf of Riga by 25% and by an increase in the average price by 12%.

From 2022, fleet segment VL0010 is split into two segments (forming after that VL0008, VL0812), which should be analysed separately. In 2022, the ROI was positive for both segments indicating that they are cost-effective in the long term.

In general, during the analysed period 2018-2022, the ROI ratio greater than 1 indicates that the economic activity of segments VL2440, VL1218 and VL0010 (VL0008 and VL0812 from 2022) is cost-effective in the long term. However, if the negative effects of changes in fish prices and excessively high average expenditure per vessel persist, this could have a direct impact on the future profitability of the fishing fleet.

The detailed ROI calculations for each fleet segment are presented in the Annex IV.

### 7.3.2. Ratio of Current revenue to Break-even revenue (CR/BER)

Break-even revenue (BER) is the revenue required to cover both fixed and variable costs so that no losses are incurred and no profits are made. Current revenue (CR) is the total operating revenue of the fleet segment, consisting of income from landings and non-fishing income. Data on subsidies are excluded from the calculation. In addition, income and expenses from the fishing rights have a value of 0, as there is no market for fishing rights in Latvia. The opportunity costs of capital are included in the calculation.

As defined in the guidelines, the ratio of current fleet revenue to break-even revenue shows how close a fleet's current revenue is to the revenue required for the fleet to break even in the short term. If the ratio is greater than 1, sufficient revenue is being generated to cover variable, fixed and capital costs, indicating that the segment is profitable and may be undercapitalised. Conversely, if the ratio is less than 1, there is insufficient income to cover variable, fixed and capital costs, indicating that the segment is unprofitable and may be overcapitalised. If the CR/BER result is negative, this means that variable costs alone exceed current revenues, indicating that the more revenues generated, the greater the losses. The ratio of current revenue to break-even revenue (CR/BER) indicates a profitable fishery in the short term. The CR/BER results and calculations for each fleet segment are presented in Table 7 and Annex V.

**Table 7. Ratio of Current revenue to Break-even revenue CR/BER)**

<b>Fleet Segments</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>VL0008 PGP</b>	0.49	-0.24	2.08	0.85	0.66
<b>VL0812 PGP</b>					3.65
<b>VL1218 TM</b>	1.05	-0.04	4.90	2.77	5.26
<b>VL2440 TM</b>	1.46	1.56	1.89	1.33	2.03

#### **Application and interpretation**

In 2022, the entire Latvian fishing fleet, with the exception of segment VL0008, improved its profitability in the short term. The segments VL0812, VL1218 and VL2440 reached the highest indicator values during the period, generating sufficient income to cover variable, fixed, and capital costs, indicating that the fleet is profitable and may be undercapitalized. For the segment VL0008 the CR/BER ratio is less than 1, indicating that there is insufficient income to cover variable, fixed and capital costs, indicating that the segment is unprofitable and may be overcapitalised.

The detailed CR/BER calculations are presented in the Annex V.

**Annex I**

Technical indicators - The Inactive Fleet Indicator (number and proportion of inactive vessels)

**Values for trawlers VL1218**

Year	Inactive vessels			% of total		
	No of vessels	kW	GT	No of vessels	kW	GT
2009	1	110	29	5.6	3.7	5.6
2010	1	110	29	5	3	3.4
2011	1	110	29	7.1	4.5	7
2012	1	110	29	8.3	5.2	8.1
2013	1	147	29	8.3	6.6	8.1
2014	0	0	0	0	0	0
2015	1	147	29	8.3	6.6	8.1
2016	1	147	29	8.3	6.6	8.1
2017	0	0	0	0	0	0
2018	0	0	0	0	0	0
2019	0	0	0	0	0	0
2020	0	0	0	0	0	0
2021	0	0	0	0	0	0
2022	0	0	0	0	0	0
2023	0	0	0	0	0	0

**Values for trawlers VL2440**

Year	Inactive vessels			% of total		
	No of vessels	kW	GT	No of vessels	kW	GT
2009	9	1857	831	11.7	8.8	8.3
2010	8	1790	788	11.4	9.7	9.4
2011	7	2392	1002	11.7	13.6	13.1
2012	7	1712	805	11.7	9.6	10.5
2013	5	1102	579	8.9	6.5	7.9
2014	2	699	214	3.8	4.3	3.1
2015	2	698	222	3.9	4.3	3.3
2016	2	607	230	4.4	4.1	3.7
2017	2	606	221	4.3	3.9	3.6
2018	4	1047	441	9.1	6.9	7.5
2019	6	1838	675	13.9	12.6	11.7
2020	8	2109	811	20	15.4	14.9
2021	9	1984	929	29	5.2	4.3
2022	5	1249	481	16.1	10.9	11.4
2023	7	1690	718	21.2	14.8	15.4

**Annex II**

Technical indicators - The Vessel Utilisation Indicator

**Values for boats VL0010 using polyvalent passive gears**

Year	Number of vessels	Capacity (average)	Effort (average)		Maximum effort (based on observed max)		Technical indicator	
		GT	days	GT*days	days	GT*days	days <sup>1</sup>	GT*days <sup>2</sup>
2009	259	2.3	37	88	206	477	0.18	0.19
2010	260	2.2	42	101	175	382	0.24	0.26
2011	252	2	38	84	157	321	0.24	0.26
2012	210	1.7	41	78	215	363	0.19	0.21
2013	200	1.7	44	84	205	347	0.21	0.24
2014	223	1.9	51	104	203	383	0.25	0.27
2015	204	1.9	53	102	223	420	0.24	0.24
2016	200	2	50	90	188	368	0.26	0.25
2017	196	1.89	52	98	193	365	0.27	0.27
2018	194	2	49	103	173	350	0.28	0.28
2019	196	2	47	94	171	342	0.27	0.27
2020	190	2.1	51	99	227	474	0.22	0.22
2021	192	2.2	47	109	222	488	0.21	0.22
2022	153	2.03	35	78	142	310	0.23	0.25

**Values for boats VL0008 using polyvalent passive gears**

Year	Number of vessels	Capacity (average)	Effort (average)		Maximum effort (based on observed max)		Technical indicator	
		GT	days	GT*days	days	GT*days	days <sup>1</sup>	GT*days <sup>2</sup>
2022	116	0.9	36	34	140	129	0.25	0.26
2023	125	0.9	41	38	156	142	0.26	0.27

**Values for boats VL0812 using polyvalent passive gears**

Year	Number of vessels	Capacity (average)	Effort (average)		Maximum effort (based on observed max)		Technical indicator	
		GT	days	GT*days	days	GT*days	days <sup>1</sup>	GT*days <sup>2</sup>
2022	37	5.5	34	214	81	445	0.42	0.48
2023	39	5.7	42	535	95	575	0.45	0.93

**Values for trawlers VL1218**

Year	Number of vessels	Capacity (average)	Effort (average)		Maximum effort (based on observed max)		Technical indicator	
		kW	days	kW*days	days	kW*days	days <sup>1</sup>	kW*days <sup>3</sup>
2006	33	153	133	21987	236	36180	0.56	0.61
2007	31	153	144	24156	290	44239	0.5	0.55
2008	28	156	139	23495	231	36110	0.6	0.65
2009	23	160	142	24797	258	41269	0.55	0.6
2010	17	168	156	27244	207	34752	0.75	0.78
2011	16	172	172	31023	260	44590	0.66	0.7
2012	13	180	160	29651	232	41760	0.69	0.71
2013	11	183	176	32837	217	39770	0.81	0.83
2014	11	190	159	30281	197	37430	0.81	0.81
2015	11	188	161	30382	251	47256	0.64	0.64
2016	11	188	147	27997	221	41608	0.67	0.67
2017	11	190	178	34015	188	35737	0.94	0.95
2018	11	190	178	34225	189	35927	0.94	0.94
2019	11	194	145	28130	157	30458	0.92	0.92
2020	9	193	189	36604	189	36981	0.99	0.99
2021	9	204	168	34236	180	36720	0.93	0.93
2022	9	204	187	38211	187	38042	1	0.99
2023	9	204	174	35946	174	36015	0.99	0.99



## Values for trawlers VL2440

Year	Number of vessels	Capacity (average)	Effort (average)		Maximum effort (based on observed max)		Technical indicator	
		kW	days	kW*days	days	kW*days	days <sup>1</sup>	kW*days <sup>3</sup>
2006	75	265	110	28526	199	52758	0.55	0.54
2007	70	270	118	32706	205	55431	0.58	0.59
2008	69	266	106	28741	184	48929	0.58	0.59
2009	60	308	91	25569	191	58780	0.48	0.44
2010	49	301	105	33199	176	52911	0.6	0.63
2011	48	308	102	30791	197	60606	0.52	0.51
2012	48	320	111	34344	214	68578	0.52	0.5
2013	46	321	115	37437	217	69549	0.53	0.54
2014	45	320	107	33801	180	57620	0.6	0.59
2015	44	326	113	36169	193	62870	0.59	0.58
2016	44	333	105	34050	184	61243	0.57	0.56
2017	44	336	118	39672	180	60590	0.66	0.65
2018	40	342	127	43414	173	60243	0.73	0.73
2019	37	357	105	37539	158	56459	0.66	0.66
2020	32	336	143	37388	155	56270	0.67	0.67
2021	29	368	100	37861	152	55973	0.66	0.68
2022	26	373	115	41601	167	62110	0.69	0.67
2023	26	373	123	43957	150	52901	0.82	0.83

<sup>1</sup> ratio between average days at sea and maximum days at sea.

<sup>2</sup> ratio between average GT\*days at sea and maximum GT\*days at sea.

<sup>3</sup> ratio between average kW\*days at sea and maximum kW\*days at sea.

## Annex III

## Biological indicators SHI for Latvian Fleet segments in 2020-2022

			2020				2021				2022			
Area	Fleet segment	Parameters	COD 25-32	HER 25-29, 32 (excl.28.1)	SPR 22-32	HER GOR (28.1)	COD 25-32	HER 25-29, 32 (excl.28.1)	SPR 22-32	HER GOR (28.1)	COD 25-32	HER 25-29, 32 (excl.28.1)	SPR 22-32	HER GOR (28.1)
SD 25-32	VL2440 trawlers	Catch,t	49	5825	27029		7	3655	26846		0.243	3456.8	29412.9	
		F c	n/d	0.46	0.37		n/d	0.29	0.42		n/d	0.23	0.35	
		Fmsy	n/d	0.21	0.37		n/d	0.21	0.32		n/d	0.21	0.34	
		F/Fmsy	n/d	2.19	1.00		n/d	1.38	1.31		n/d	1.10	1.03	
		F/Fmsy for segment		<b>1.21</b>				<b>1.32</b>				<b>1.04</b>		
28.1 Gulf of Riga (GOR)	VL1218 trawlers	Catch,t	n/d		709	7264	n/d		632	7708	n/d		736.8	7767.4
		F c	n/d		0.37	0.24	n/d		0.42	0.22	n/d		0.35	0.28
		Fmsy	n/d		0.37	0.32	n/d		0.32	0.24	n/d		0.34	0.28
		F/Fmsy			1.00	0.75			1.31	0.92			1.03	1.00
		F/Fmsy for segment			<b>0.77</b>				<b>0.95</b>				<b>1.00</b>	
	VL2440 trawlers	Catch,t	n/d		1155	11898	n/d		1609	12603	n/d		1203.4	15050.8
		F c	n/d		0.37	0.24	n/d		0.42	0.22	n/d		0.35	0.28
		Fmsy	n/d		0.37	0.32	n/d		0.32	0.24	n/d		0.34	0.28
		F/Fmsy			1.00	0.75			1.31	0.92			1.03	1.00
		F/Fmsy for segment			<b>0.77</b>				<b>0.96</b>				<b>1.00</b>	

## Annex IV

## ROI calculation

Year	Values for calendar year (€000)	VL0010PGP	VL0008PGP	VL0812PGP	VL1218TM	VL2440TM
2018	Income from landings + other income	2 653 268			2 999 991	17 436 858
	Low risk long term interest rate %	0.90			0.90	0.90
	Crew costs + unpaid labour costs + fuel costs + repair & maintenance costs + other variable costs + non variable costs	2 027 530			2 619 276	12 373 113
	Capital costs (depreciation + interest payments)	171 043			38 166	344 964
	Net profit = (Income from landings + other income) – (crew costs + unpaid labour + energy costs + repair and maintenance costs + other variable costs + non variable costs + depreciation)	454 696			342 549	4 718 780
	Fleet capital asset value (vessel replacement value + estimated value of fishing rights)	1 417 407			308 637	2 750 183
	<b>ROI = Net profit / capital asset value %</b>	<b>32.08</b>			<b>110.99</b>	<b>171.58</b>
	<b>ROI – risk-free long-term interest rate %</b>	<b>31.18</b>			<b>110.09</b>	<b>170.68</b>
2019	Income from landings + other income	1 173 466			3 809 379	14 546 283
	Low risk long term interest rate %	0.72			0.72	0.72
	Crew costs + unpaid labour costs + fuel costs + repair & maintenance costs + other variable costs + non variable costs	1 449 279			5 031 552	9 588 297
	Capital costs (depreciation + interest payments)	160 922			38 166	325 640
	Net profit = (Income from landings + other income) – (crew costs + unpaid labour + energy costs + repair and maintenance costs + other variable costs + non variable costs + depreciation)	-436 736			-1 260 339	4 632 345
	Fleet capital asset value (vessel replacement value + estimated value of fishing rights)	1 313 633			308 639	2 598 540
	<b>ROI = Net profit / capital asset value %</b>	<b>-33.25</b>			<b>-408.35</b>	<b>178.27</b>
	<b>ROI – risk-free long-term interest rate %</b>	<b>-33.97</b>			<b>-409.07</b>	<b>177.55</b>
<b>Year</b>	<b>Values for calendar year (€000)</b>	<b>VL0010PGP</b>	<b>VL0008PGP</b>	<b>VL0812PGP</b>	<b>VL1218TM</b>	<b>VL2440TM</b>
2020	Income from landings + other income	2 608 197			2 953 103	16 237 019

	Low risk long term interest rate %	0.50			0.50	0.50
	Crew costs + unpaid labour costs + fuel costs + repair & maintenance costs + other variable costs + non variable costs	1 190 815			1 877 296	10 481 597
	Capital costs (depreciation + interest payments)	160 507			32 100	277 761
	Net profit = (Income from landings + other income) – (crew costs + unpaid labour + energy costs + repair and maintenance costs + other variable costs + non variable costs + depreciation)	1 256 876			1 043 707	5 477 662
	Fleet capital asset value (vessel replacement value + estimated value of fishing rights)	1 003 297			259 541	2 193 438
	<b>ROI = Net profit / capital asset value %</b>	<b>125.27</b>			<b>402.14</b>	<b>249.73</b>
	<b>ROI – risk-free long-term interest rate %</b>	<b>124.77</b>			<b>401.64</b>	<b>249.23</b>
2021	Income from landings + other income	1 535 204			2 830 208	14 284 192
	Low risk long term interest rate %	0.86			0.86	0.86
	Crew costs + unpaid labour costs + fuel costs + repair & maintenance costs + other variable costs + non variable costs	211 321			2 025 241	10 598 369
	Capital costs (depreciation + interest payments)	194 877			32 100	245 011
	Net profit = (Income from landings + other income) – (crew costs + unpaid labour + energy costs + repair and maintenance costs + other variable costs + non variable costs + depreciation)	1 129 005			772 867	3 440 812
	Fleet capital asset value (vessel replacement value + estimated value of fishing rights)	1 576 033			259 541	1 957 751
	<b>ROI = Net profit / capital asset value %</b>	<b>71.64</b>			<b>297.78</b>	<b>175.75</b>
	<b>ROI – risk-free long-term interest rate %</b>	<b>70.78</b>			<b>296.92</b>	<b>174.89</b>

Year	Values for calendar year (€000)	VL0010PGP	VL0008PGP	VL0812PGP	VL1218TM	VL2440TM
2022	Income from landings + other income		682 935	489 940	3 118 027	17 449 172
	Low risk long term interest rate %		0.69	0.69	0.69	0.69
	Crew costs + unpaid labour costs + fuel costs + repair & maintenance costs + other variable costs + non variable costs		82 993	165 788	2 095 078	10 544 719
	Capital costs (depreciation + interest payments)		142 748	13 618	30 294	307 619
	Net profit = (Income from landings + other income) – (crew costs + unpaid labour + energy costs + repair and maintenance costs + other variable costs + non variable costs + depreciation)		457 194	310 533	992 655	6 596 833
	Fleet capital asset value (vessel replacement value + estimated value of fishing rights)		1 119 479	106 950	221 993	2 412 841
	<b>ROI = Net profit / capital asset value %</b>		<b>40.84</b>	<b>290.35</b>	<b>447.16</b>	<b>273.41</b>
	<b>ROI – risk-free long-term interest rate %</b>		<b>40.15</b>	<b>289.66</b>	<b>446.47</b>	<b>272.72</b>

\* Net profit (economic) calculated by PIM.

## Annex V

Ratio of Current revenue to Break-even revenue (CR/BER) calculation

Year	Nr.	Values for a calendar year (€'000) Use Segment total figures	VL0010 PGP	VL0008PGP	VL0812PGP	VL1218TM	VL2440TM
2018	1	Current revenue (CR) = Income from landings + other income	2 653 268			2 999 991	17 436 858
	2	Fixed costs = Non variable costs + depreciation +opportunity of capital	1 623 268			1 296 746	4 871 004
	3	Variable costs = Crew costs + Unpaid labour costs + Energy costs + Repair & maintenance costs + Other variable costs	1 850 971			1 638 470	10 322 238
	4	BER = 2 / ( 1 - [ 3 / 1 ] )	5 368 291			2 857 263	11 938 095
	5	<b>CR / BER = 1 / 4</b>	<b>0.49</b>			<b>1.05</b>	<b>1.46</b>
2019	1	Current revenue (CR) = Income from landings + other income	1 173 466			3 809 379	14 546 283
	2	Fixed costs = Non variable costs + depreciation +opportunity of capital	1 119 196			1 424 715	4 934 508
	3	Variable costs = Crew costs + Unpaid labour costs + Energy costs + Repair & maintenance costs + Other variable costs	1 436 822			3 867 224	6 850 378
	4	BER = 2 / ( 1 - [ 3 / 1 ] )	-4 986 926			-93 825 359	9 326 875
	5	<b>CR / BER = 1 / 4</b>	<b>-0.24</b>			<b>-0.04</b>	<b>1.56</b>
2020	1	Current revenue (CR) = Income from landings + other income	2 608 197			2 953 103	16 237 019
	2	Fixed costs = Non variable costs + depreciation +opportunity of capital	700 721			234 198	4 944 136
	3	Variable costs = Crew costs + Unpaid labour costs + Energy costs + Repair & maintenance costs + Other variable costs	1 152 249			1 804 968	6 911 940
	4	BER = 2 / ( 1 - [ 3 / 1 ] )	1 255 278			602 378	8 608 832
	5	<b>CR / BER = 1 / 4</b>	<b>2.08</b>			<b>4.90</b>	<b>1.89</b>

2021	1	Current revenue (CR) = Income from landings + other income	1 535 204			2 830 208	14 284 192
	2	Fixed costs = Non variable costs + depreciation +opportunity of capital	1 554 737			311 000	5 294 362
	3	Variable costs = Crew costs + Unpaid labour costs + Energy costs + Repair & maintenance costs + Other variable costs	206 849			1 969 546	7 232 684
	4	BER = 2 / ( 1 - [ 3 / 1 ] )	1 796 838			1 022 696	10 724 754
	5	<b>CR / BER = 1 / 4</b>	<b>0.85</b>			<b>2.77</b>	<b>1.33</b>
2022	1	Current revenue (CR) = Income from landings + other income		682 935	489 940	3 118 027	17 449 172
	2	Fixed costs = Non variable costs + depreciation +opportunity of capital		143 345	17 026	44 023	3 198 309
	3	Variable costs = Crew costs + Unpaid labour costs + Energy costs + Repair & maintenance costs + Other variable costs		82 397	163 837	2 081 350	7 718 998
	4	BER = 2 / ( 1 - [ 3 / 1 ] )		163 012	25 579	132 408	5 735 545
	5	<b>CR / BER = 1 / 4</b>		<b>0.66</b>	<b>3.65</b>	<b>5.26</b>	<b>2.03</b>

## Annex VI

The statement of balance between fleet capacity and fishing opportunities for Latvia

VL1218TM									
Indicator	Definition	ICES area	2018	2019	2020	2021	2022	2023	
ECONOMIC1	ROI	Area 27 SD 28.1	positive ROI under-capitalization	negative ROI over-capitalization	positive ROI under-capitalization	positive ROI under-capitalization	positive ROI under-capitalization	*NA	
ECONOMIC2	CR/BER	Area 27 SD 28.1	1<1.05 economically profitable with potential under capitalization	-0.04<0<1 economically unprofitable with potential over-capitalization	1<4.90 economically profitable with potential under capitalization	1<2.77 economically profitable with potential under capitalization	1<5.26 economically profitable with potential under capitalization	*NA	
TECHNICAL1	IFI - Proportion of inactive vessels	Area 27 SD 28.1	0	0	0	0	0	0	
TECHNICAL2	VUI-Vessel utilisation (Ratio between average and maximum effort per vessel, kW*days)	Area 27 SD 28.1	0.94	0.92	0.99	0.93	1	0.99	
BIOLOGICAL1	SHI - Ratio between F estimated and F target (MSY)	Area 27 SD 28.1	0.84	0.95	0.77	0.95	1	**NA	
BIOLOGICAL2	SARI - Stock-at-risk	Area 27 SD 28.1	Not calculated						

\*NA – not applicable. The economic data for 2023 will be available in November-December of 2024.

\*\*NA – not applicable. In the latest ICES advice information about Fc and Fmsy is provided for 2022.



VL2440TM									
Indicator	Definition	Area	2018	2019	2020	2021	2022		
ECONOMIC1	ROI	Area 27 SD 22-32	positive ROI under-capitalization	positive ROI under-capitalization	positive ROI under-capitalization	positive ROI under-capitalization	positive ROI under-capitalization	*NA	
ECONOMIC2	CR/BER	Area 27 SD 22-32	1<1.46 economically profitable with potential under capitalization	1<1.56 economically profitable with potential under capitalization	1<1.89 economically profitable with potential under capitalization	1<1.33 economically profitable with potential under capitalization	1<2.03 economically profitable with potential under capitalization	*NA	
TECHNICAL1	IFI - Proportion of inactive vessels	Area 27 SD 22-32	9.1 (<10%)	13.9	20	29	16.1	21.2	
TECHNICAL2	VUI-Vessel utilisation (Ratio between average and maximum effort per vessel, kW*days)	Area 27 SD 22-32	0.73	0.66 (<0.7)	0.67 (<0.7)	0.68 (<0.7)	0.69 (<0.7)	0.82	
BIOLOGICAL1	SHI - Ratio between F estimated and F target (MSY)	Area 27 SD 22-32	1.24	1.49	1.21	1.32	1.04	**NA	
		Gulf of Riga	0.86	1.01	0.77	0.96	1	**NA	
BIOLOGICAL2	SARI - Stock-at-risk	Area 27 SD 22-32	Not calculated						

\*NA – not applicable. The economic data for 2023 will be available in November-December of 2024.

\*\*NA – not applicable. In the latest ICES advice information about Fc and Fmsy is provided for 2022.

VL0010PGP									
Indicator	Definition	Area	2017	2018	2019	2020	2021	2022	
ECONOMIC1	ROI	Area 27 SD 26, 28	negative ROI over-capitalization	positive ROI under-capitalization	negative ROI over-capitalization	positive ROI under-capitalization	positive ROI under-capitalization	*NA	
ECONOMIC2	CR/BER	Area 27 SD 26, 28	0<0.16<1 current revenue covers the current costs	0<0.49<1 current revenue covers the current costs	-0.24<0<1 economically unprofitable with potential over-capitalization	1<2.08 economically profitable with potential under-capitalization	0<0.85<1 current revenue covers the current costs	*NA	
TECHNICAL1	IFI - Proportion of inactive vessels	Area 27 SD 26, 28	Not calculated						
TECHNICAL2	VUI-Vessel utilisation (Ratio between average and maximum effort per vessel, kW*days)	Area 27 SD 26, 28	0.27 (<0.7)	0.28 (<0.7)	0.27 (<0.7)	0.22 (<0.7)	0.21 (<0.7)	0.23 (<0.7)	
BIOLOGICAL1	SHI - Ratio between F estimated and F target (MSY)	Area 27 SD 26, 28	Not calculated						
BIOLOGICAL2	SARI - Stock-at-risk	Area 27 SD 26, 28	Not calculated						

\*NA – not applicable. The economic data for 2023 will be available in November-December of 2024.

The collection of economic data from vessels less than 12 metres in length has been modified and split into two segments from 2022.

<b>VL0008PGP</b>				
<b>Indicator</b>	<b>Definition</b>	<b>Area</b>	<b>2022</b>	<b>2023</b>
<b>ECONOMIC1</b>	<b>ROI</b>	Area 27 SD 26, 28	positive ROI under-capitalization	*NA
<b>ECONOMIC2</b>	<b>CR/BER</b>	Area 27 SD 26, 28	0<0.66<1 economically profitable with potential under capitalization	*NA
<b>TECHNICAL1</b>	<b>IFI - Proportion of inactive vessels</b>	Area 27 SD 26, 28	Not calculated	
<b>TECHNICAL2</b>	<b>VUI-Vessel utilisation (Ratio between average and maximum effort per vessel, kW*days)</b>	Area 27 SD 26, 28	0.25 (<0.7)	0.26 (<0.7)
<b>BIOLOGICAL1</b>	<b>SHI - Ratio between F estimated and F target (MSY)</b>	Area 27 SD 26, 28	Not calculated	
<b>BIOLOGICAL2</b>	<b>SARI - Stock-at-risk</b>	Area 27 SD 26, 28	Not calculated	

\*NA – not applicable. The economic data for 2023 will be available in November-December of 2024.

<b>VL0812PGP</b>				
<b>Indicator</b>	<b>Definition</b>	<b>Area</b>	<b>2022</b>	<b>2023</b>
<b>ECONOMIC1</b>	<b>ROI</b>	Area 27 SD 26, 28	positive ROI under-capitalization	*NA
<b>ECONOMIC2</b>	<b>CR/BER</b>	Area 27 SD 26, 28	1<3.65 economically profitable with potential under capitalization	*NA
<b>TECHNICAL1</b>	<b>IFI - Proportion of inactive vessels</b>	Area 27 SD 26, 28	Not calculated	
<b>TECHNICAL2</b>	<b>VUI-Vessel utilisation (Ratio between average and maximum effort per vessel, kW*days)</b>	Area 27 SD 26, 28	0.42 (<0.7)	0.45 (<0.7)
<b>BIOLOGICAL1</b>	<b>SHI - Ratio between F estimated and F target (MSY)</b>	Area 27 SD 26, 28	Not calculated	
<b>BIOLOGICAL2</b>	<b>SARI - Stock-at-risk</b>	Area 27 SD 26, 28	Not calculated	

\*NA – not applicable. The economic data for 2023 will be available in November-December of 2024.