The Annual Report on the Latvian Fishing Fleet 2022

1. 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 vessel entry/exit regime without any deviations.

The fishing vessel decommissioning process affects positively 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). The Technical indicators can therefore be considered as the baseline indicator for each fleet segment (*Guidelines*).

Inactive Fleet Indicator (IFI) shows that for Latvian offshore fleet segment VL1218 the proportion of inactive vessels does not exceed allowable level for the period of last 14 years. However, for segment VL2440 in the last four years number of inactive vessels is observed on level 22% in average. Due to limited available quota and quota reduction of Central Baltic herring there is no possibilities to change type of fishery or target species. The measures to balance the fleet segment VL2440 are included into Annex VII of The Annual Report on the Latvian Fishing Fleet 2022.

Vessel Utilization Indicator (VUI) for segment VL0010 shows slight increase by 10% in last year and reached 0.23, i.e., not "in balance". It could be explained by low activity level in the segment of small boats and seasonality. The number of active small boats used in coastal fishery in previous year is reduced by 20%. In recent years, low activity has also been linked to the high interaction periods and damage caused by seals to coastal fishing gears and catches. During the period when seals are observed in a larger amount, fishermen do not deploy their fishing gears to avoid the destructions and damages to their property. VUI for segment VL1218 increased in comparison to the previous year and reached 1 in 2022 and therefore this segment can be considered as "in balance". VUI for segment VL2440 slightly increased in comparison to the previous year and reached 0.69 in 2022 just below the threshold 0.7. It could be stated that capacity of this segment is not "in balance" with the fishing opportunities. This situation repeats in last four years and therefore the measures to balance the fleet segment VL2440 are included into Annex VII of The Annual Report on the Latvian Fishing Fleet 2022.

Following the recommendations and applying the interpretation proposed in the Guidelines about the Biological Indicator - Sustainable Harvest Indicator (SHI) it can be concluded:

- for the segment of trawlers VL2440 in the Baltic proper (SD 25-32) which mainly exploits the sprat stock with bycatch of herring SHI value indicates excess of "balance" level due to the high SHI value both for herring and sprat. In general, it can be concluded, that Latvian segment of trawlers VL2440 in SD 25-32 is out of balance between fleet capacity and fishing opportunities. The

measures to balance the fleet segment VL2440 are included into Annex VII of The Annual Report on the Latvian Fishing Fleet 2022.;

- for two segments (trawlers VL1218 and VL2440) in the Gulf of Riga that rely on stocks of herring and sprat (bycatch) average value of SHI is 0.95, i.e., on the level of SHI. It can be concluded that the cluster of the trawler segments in the Gulf of Riga is "in balance" between fleet capacity and fishing opportunities.

According to methodology proposed in Guidelines biological indicator SHI for segment VL0010 was not calculated due to unavailability of quantified parameters and scientific advice for the stocks included in catch composition in fishery with passive gears.

For the evaluation of the achievement of balance between fleet capacity and fishing opportunities in Latvian fishery from 2017 to 2021 three Baltic Sea fleet segments were selected and included in the analysis. Two economic indicators were calculated for each fleet segment to evaluate whether fleet segments are economically sustainable in the long-term and short-term.

The indicator Return on Investment (ROI) shows investment profitability. ROI positive and greater than the low-risk long-term interest rate shows positive return generated by the investment and suggests that extraordinary profits are being generated as a sign of economic under-capitalization. In 2021 in comparison to 2020 all three segments showed decreasing of ROI indicator value by: 43% for VL0010, by 26% for VL1218 and by 30% for VL2440. Despite of decreasing, all three analyzed segments have a positive ROI in 2021 characterizing the 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 Ratio of Current revenue to Break-even revenue (CR/BER) reflects the financial capability of businesses in each fleet segment to continue vessel operations on a day-by-day basis. The trawlers segment VL2440 operating in the Baltic Sea offshore zone show CR/BER ratio positive and greater than 1 from 2018 to 2021, characterizing the segment profitability in the short-term. Despite the decrease of CR/BER indicator value by 30% in 2021, average value of indicator in period 2018-2021 constitute 1.56. For vessel segment VL1218 the CR/BER indicator value in 2021 decreased by 43% and consist 2.77, characterizing the segment profitability in the short-term. In 2021 CR/BER indicator for vessel segment VL0010 reduced by 59% and consist 0.85. It's indicating, that insufficient income is generated to cover variable, fixed and capital costs, indicating that the segment is unprofitable, with potential over-capitalization. The CR/BER indicator fluctuates from year to year for all three segments and show stable profitable fishery in 2021 for segments VL1218 and VL2440, while for segment VL0010 indicator value is just below reference point. The detailed calculations and conclusions are presented in the section 7.3.2 and Annex V.

In this report the following categories of fishing vessels were excluded from the analysis of respective indicators:

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

2. Statement of MS opinion on balance of fleet capacity and fishing opportunity

Latvia continues to apply strictly and fully complies with the existing rules of Common Fisheries Policy for the Community Fishing Fleet entry/exit scheme. The Fisheries Department (FD) of the Ministry of Agriculture requires withdrawal of the fishing vessel or vessels with equivalent or bigger capacity from the

fishing fleet without public support before the entry of the new fishing vessel or vessels into register. After 1st of May, 2004 there were 396 fishing vessels decommissioned and withdrawn from the Baltic Sea fleet in total. This process positively affects the balance between the fishing fleet's capacity and the fish resources allocated to Latvia. However, in last four years both technical indicators and biological indicator (SHI) for fleet segment VL2440 exceed their critical levels. Therefore, the measures to balance the fleet segment VL2440 are included into Annex VII of The Annual Report on the Latvian Fishing Fleet 2022.

3. 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 2022

Fleet segment	% from total No of vessels	% from total GT	% from total kW
High Seas	1.1	75.0	54.3
Baltic Sea offshore	6.2	21.6	33.6
Baltic Sea coastal	92.7	3.4	12.1

On 31st of December, 2021 the Latvian fishing fleet contained 645 vessels with total fleet engine power 38034 kW and overall gross tonnage 21792 GT, but on the 31st of December, 2022 the Latvian fishing fleet contained 645 vessels with total fleet engine power 38063 kW and overall gross tonnage 21806 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 75% of the total GT and 54.3% of the total KW respectively.

In 2022 vessels of 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).

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

Target species in the NEAFC area was northern shrimp and Atlantic cod and in the CECAF area – Atlantic horse mackerel, mackerel, sardine, Atlantic bonito and Atlantic pomfret. This fleet segment constitutes about 40.2% of the total Latvian catch in 2022.

Baltic Sea (including the Gulf of Riga) Offshore Fleet

This fleet group consisted of 40 fishing vessels (on the 31st of December, 2022) with overall length from 12 to 40 m LOA (Length overall). Number of vessels in this segment was 6.2% of the total Latvian fishing fleet and it contributed 21.6 % 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 57.6% of the total Latvian catch in 2022.

Table 2. Description and segmentation of the Baltic Sea (including the Gulf of Riga) offshore fleet in 2022

Length	Type of gear	Number of vessels			Total fleet catch in 2022 (%) of catch quota		
		31.12.2020	Active in 20212	31.12.2022	Cod	Sprat	Herring
VL1218	Trawler	9	9	9	0	2	30
VL2440	Trawler	31	26	31	100	98	70

Coastal Fishing Fleet

Represented by 598 fishing boats with overall length equal to or less than 12 m which constitute the majority of vessel number or 92.7% from the total, but contribute only 3.4% to total GT and 12.1% to total kW.

In 2022, the coastal fishers used actively and regularly 153 boats for the commercial fishing and 28 boats - for self-consumption fishing. Some boats (6) have been used in both fisheries. Other fishing boats fished episodically or were used as accessory boats.

Coastal fleet segment is very important for Latvian coastal regions along the Gulf of Riga and sea coastline for socio-economic reasons. Small-scale fishery is the main source of subsistence and employment for residents of remote coastal communities.

However, the catches of coastal fishing fleet are relatively small (about 3.6% 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 and non-quota species mainly obtained by fixed passive fishing gears. This fleet segment contributed about 2.2% to the total Latvian catch (including High Sea fishery) in 2022.

In 2022 coastal fishing fleet also includes 22 boats (from 598) used for self-consumption fishing within one gear rule (maximum 1 net or 1 herring net or 1 fyke-net or 100 hooks could be used simultaneously by one person) and the marketing of these catches is prohibited.

However, in the coastal fishing fleet the scrapping plan was fulfilled in relation to GT and kW but was not fully achieved in relation to the number of vessels. Since in the coastal fishery only passive gears are deployed, the balancing of the number of the vessels is more important than GT and kW.

3.3. Development in the fleets

In 2022 small increase in GT and kW is observed, which is connected to the changes of engines for selected vessels related to free unused/reserved capacities (Table 3).

Table 3. Evolution of Latvian fishing fleet (from 1st of May, 2004 to 31st of December, 2022)

Date	Number of vessels	GT	kW
Census: 1st of May, 2004	898	44449	74320
31st December, 2021	645	21792	38034
31st December, 2022	645	21806	38063
Difference between CEN date and 31st of December, 2022	253	22643	36257

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

In 2022 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 4. Management of entry/exit regime on 31.12.2022

		GT		kW	
1	Capacity of fleet on 1st May 2004	**GTFR**	44449	**kWFR**	74320
2	Capacity level for the application of entry/exit regime	**GT04**	56555	**kW04**	83930
3	Entries of vessels of more than 100 GT financed with public aid	**GT100**	0	**kW100**	0
4	Other entries or capacity increases (not included in 3 & 5)		61021		78495
5	Increases in tonnage GT for reasons of safety	**GTS**	0	**-**	-
6	**Total entries (3+ 4 + 5)**		**61021**		**78495**
7	Exits before 1/1/2007 financed with public aid	**GTa1**	3134	**kWa1**	7441
8	Exits after 1/1/2007 financed with public aid	**GTa2**	9145	**kWa2**	22487
9	Other exits (not included in 7 & 8)		71385		84824
10	**Total exits (7 + 8 +9)**		**83644**		**114752**
11	Power of engines replaced with public aid conditional to power reduction	**-**	-	**kWr**	0
12	Capacity of the fleet on 31.12.2022 (1 + 6 – 10)	**GTt**	21806	**kWt**	38063
13	Fleet ceiling on 31.12.2022		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 = $2 - 35\%\ 3 - 7 - 8 - 20\%11\ \%11$

5. Section C

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

In 2022, 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;

- o 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.);
  - o 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 2022 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.

6. Section D

Information on changes of the administrative procedures relevant to fleet management

There were no significant changes in 2022 in the administrative procedures. However, it should be mentioned that the work with LFICIS improvements and development is still continuing. For the years 2012-2022, 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.

7. **Section E**

Estimation and discussion of balance indicators

7.1. Technical indicators – Vessel Use Indicators

Technical indicators for Latvian fishing fleet were calculated according to the Guidelines. These indicators show how much fleet capacity could be reduced without reducing overall fleet output (landings). The technical indicators can be considered as the baseline indicator for each fleet segment. The maximum day 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 proportion of inactive vessels of the total fleet was calculated with respect to number of vessels, GT and kW. The total number of vessels registered in the fleet register on the 31st of December of the respective year and all active vessels of the corresponding year were taken to determine the number of inactive vessels by different length classes. The values of Inactive Fleet Indicator (IFI) for period 2009-2022 are presented in Annex I.

The IFI indicator for the segment VL1218 shows zeros in last six years, as there were no inactive vessels in this segment. For the segment VL2440 in the last four years the IFI indicator value is observed on 22% in average. This could be explained by negative effect of the reduction of Central Baltic herring quota in the last years. The proportion of inactive vessels in the segment VL2440 exceed threshold value (10%) for four years in a row and according to the Guidelines this segment is not in balance with respect to IFI. The measures to balance the fleet segment VL2440 are included into Annex VII of The Annual Report on the Latvian Fishing Fleet 2022.

7.1.2. The Vessel Utilisation Indicator – VUI

Vessel Utilisation Indicator characterizes the ratio between efforts actually deployed to the maximum effort that could be extended by the fleet. All active Baltic Sea vessels, which had license and fished at least one day a year have been taken for the calculation. The values of Vessel Utilisation Indicator also known as Vessel Utilisation Ratio (VUR) are presented in Annex II.

The segment of trawlers VL1218 operates mainly in the Gulf of Riga with target species Baltic herring. Number of vessels in 2022 is reduced by 72% in comparison to 2006. Considering that VUI value of last six years is greater than 0.9, it could be stated that capacity of this segment is in balance with the fishing opportunities.

The segment of trawlers and netters VL1824 does not exist since 2017. According to the rules of clustering (*Regulation (EU) 2016/679*) the remaining vessel was included in the segment of trawlers VL2440.

The segment of trawlers VL2440 operates mainly in ICES SD 25-32 with target species Baltic sprat and bycatch of Baltic herring and in the past (until 2019) targeting Baltic cod as well. The quotas for these stocks were reduced for several years with total closure of the Eastern Baltic cod targeted fishery from the

second half of 2019. Number of vessels in 2022 is reduced by 65.3% in comparison with 2006. VUI for this segment in the last four years was just below the threshold 0.7. It could be stated that capacity of this segment is not "in balance" with the fishing opportunities. The measures to balance the fleet segment VL2440 are included into Annex VII of The Annual Report on the Latvian Fishing Fleet 2022.

The segment of small-scale coastal fishery VL0010 was calculated only for commercial fishery. The coastal fishery uses different static gears such as nets, traps, lines and seines. Average activity level for this segment was less than 24% of the potential during the period of 2009-2022. In general, it indicates that for significant part of coastal fishers the fishery constitutes only a part job in their activities. This could be also connected with the lower availability of fish resources and its' seasonality in the coastal area. Although the utilization ratio of small boats VL0010 is consistently at a very low level, this segment is very important in socio-cultural aspect as traditional activities for population of coastal settlements.

Summary

In the segments where the number of vessels is around 10 or less, any changes in fishing strategy by one vessel or one company could noticeably vary the technical indicator values. For Latvian fishing fleet the segment of trawlers VL1218 can be considered as small in number of vessels and any conclusion of it balance should be treated with caution and verified over the time.

In 2022 the value of the vessel utilization rate for the segment VL1218 is greater than 0.9 and it could be stated that capacity of this segment is in balance with the fishing opportunities. VUI value for segment VL2440 is just below the threshold 0.7 for four years in a row and it could be stated that capacity of this segment is not "in balance" with the fishing opportunity. IFI value for the segment VL2440 is above the threshold 10% for four years in a row and it could be stated that capacity of this segment is not "in balance" with the fishing opportunity. The measures to balance the fleet segment VL2440 are included into Annex VII of The Annual Report on the Latvian Fishing Fleet 2022.

VUI value for segment VL0010 is on the low level as in previous years and it could be explained by low activity level and seasonality. Further closer look on this segment development in relation to available fish resources should be done in the following years.

7.2. Biological indicators

7.2.1. Biological indicator Sustainable Harvest Indicator – SHI

The Sustainable Harvest Indicator (SHI) was defined for two Latvian fishing fleet segments, which contribute around 90% to the total Latvian catch in the Baltic Sea. The values of SHI for period of 2008-2021 and two fishing regions (Baltic proper and Gulf of Riga) were calculated for the following fleet segments:

- trawlers VL2440 in SD 25-32 (excl. SD 28.1) with target species of sprat (88% of the mixed catches);
- trawlers VL1218 in the Gulf of Riga (SD 28.1) with target species of herring (92% of the mixed catches);
- trawlers VL2440 in the Gulf of Riga (SD 28.1) with target species of herring (89% of the mixed catches).

The values of Current fishing mortality (Fc) and fishing mortality of Maximum Sustainable Yield (Fmsy) for stocks exploited by Latvian fishing fleet were obtained from the Report of Baltic Fisheries Assessment

Working Group (*ICES. 2022. Baltic Fisheries Assessment Working Group (WGBFAS). ICES Scientific Reports.4:44.659pp. http://doi.org/10.17895/ices.pub.19793014*):

- • Sprat in SD 22-32 – Fc=0.42, Fmsy=0.32;
- • Herring in SD 25-27, 28.2, 29 and 32 – Fc=0.29, Fmsy=0.21;
- • Herring in SD 28.1 (Gulf of Riga herring) – Fc=0.22, Fmsy=0.24;
- • There are no data for the SHI calculation for the Baltic cod stock.

The calculated SHI indicator values for all species and fleet segments are presented in the Annex III. A value of SHI biological indicators less than "1" is usually considered as indicating a sustainable exploitation of the stock and a value higher than "1" is usually considered as a sign of overfishing of the stock.

For segment trawlers VL2440 in SD 25-32 (excl. 28.1) SHI values for both herring and sprat stocks were calculated separately and average value of SHI for the segment was determined (Fig.1, Annex III). The average SHI values for this segment are quite widely fluctuating around "1" in 2008-2021, and mainly depend on the ratio Fc/Fmsy values for the sprat, which is the largest part of the total catches (around 86%). Catches of herring in this segment should be considered as a permanent bycatch in sprat fishery.

The separate SHI indicator for herring stock SD 25-32 (excl. 28.1) in 2021 was significantly less than in 2020 (1.38 in contrast to 2.19) but still being "out of balance". The separate SHI indicator for sprat stock SD 22-32 showed significant growth in 2021 (1.31) compared to 2020 (1.19). This means that VL2440 segment operates on an overexploited stock of herring and sprat and is "not in balance".

Fig. 1. The changes of biological indicator SHI during the period of 2008-2021 for the segment of trawlers VL2440 in the Baltic Sea.

For segments of trawlers VL2440 and trawlers VL1218 in the Gulf of Riga, which are mostly fishing herring, the bycatch of sprat was also taken into account (Fig. 2, Annex III). The share of herring in mixed catches is approximately the same for both considered segments (about 92% in 2021).

Long-term dynamics of the SHI parameter demonstrates quite widely fluctuation around reference point of "1" for period of 2008-2021 (Fig. 2). In 2021 average value of SHI parameter for both trawler segments in the Gulf of Riga was determined as 0.95, which corresponds to the level of balance. It means that cluster

of the segments (VL2440 and VL1218) in the Gulf of Riga is in a state of "balance between fleet capacity and the possibility of fish resources".
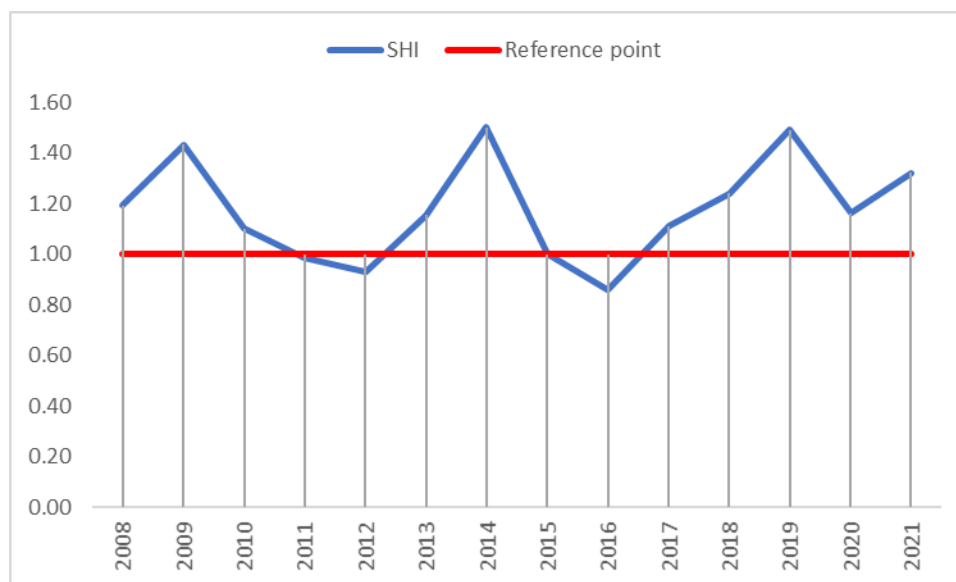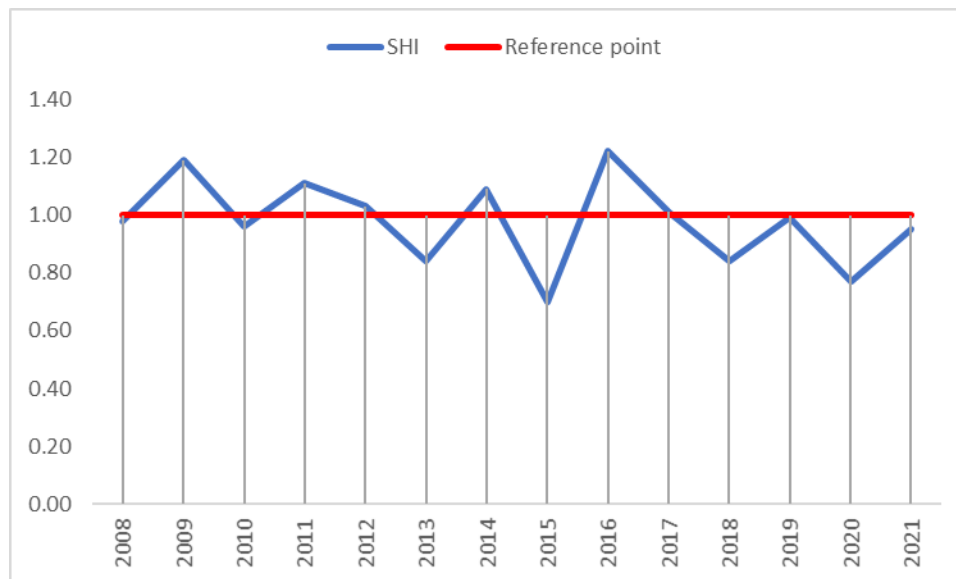

Fig. 2. The changes of biological indicator SHI during the period of 2008-2021 for the segments of trawlers VL1218 and VL2440 in the Gulf of Riga.

Following the recommendations and applying the interpretation proposed in the guidelines it can be concluded:

•   for the segment of trawlers VL2440 in the Baltic proper (SD 25-32) which mainly exploits the sprat stock with bycatch of herring SHI value indicates excess of "balance" level due to the high SHI value both for herring and sprat. In general, it can be concluded, that Latvian segment of trawlers VL2440 in SD 25-32 is out of balance between fleet capacity and fishing opportunities. The measures to balance the fleet segment VL2440 are included into Annex VII of The Annual Report on the Latvian Fishing Fleet 2022;

•   for two segments (trawlers VL1218 and VL2440) in the Gulf of Riga that rely on stocks of herring and sprat (bycatch) average value of SHI is 0.95, i.e., on the level of Sustainable Harvest Yield. It can be concluded that the cluster of the trawler segments in the Gulf of Riga is "in balance" between fleet capacity and fishing opportunities;

•   biological indicators for the stock of Baltic cod have not been assessed due to complete cod targeted fishery ban in the Eastern part of the Baltic Sea.

7.3. Economic Indicators

The methodology used for economic analysis have been proposed by Guidelines.

For the evaluation of the achievement of balance between fleet capacity and fishing opportunities in Latvian fishery from 2017 to 2021 three Baltic Sea fleet segments (VL0010; VL1218; VL2440) were selected and included in the analysis. Two indicators proposed by the guidelines were calculated for each fleet segment to evaluate whether fleet segments are economically sustainable in the long-term and short-term.

The economic indicators show the extent of economic over or under capitalization in a fleet, both in the short and in the long-term. In order to assess the profitability of the fleet in the long-term the indicator

return on investment (ROI) was calculated. The second indicator applied - is ratio between current revenue and break-even revenue (CR/BER) reflects the financial capability of businesses with vessels in a given fleet segment to continue operating on a day-by-day basis. The indicator characterizes economic situation in the short-term.

The following categories of fishing vessels were excluded from the analysis:
• vessels over 40 meters operating in the Atlantic (area 27 and 34) due to the limited number of vessels and data confidentiality;
• inactive vessels due to the small number and low capacity;
• coastal vessels listed in the Fleet Register not engaged in commercial fishing and involved only in fishing for self-consumption.

For the calculations and analysis, the data collected in the frame of Data Collection (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 provided by the Workshop on Capital value estimations (Salerno, 7-10 October 2019) the Net profit from 2018 was calculated based on capital costs and capital value delivered from perpetual inventory method (PIM) which provides more precise economic assessment in macro perspective. Long-term interest rates for indicators calculation have been taken from the European Central Bank as Latvian average interest rate for the last five years, available at https://www.ecb.europa.eu/stats/financial_markets_and_interest_rates/long_term_interest_rates/html/index.en.html

7.3.1. Return on Investment (ROI)

Return on investment (ROI) shows investment profitability and is defined as Net profit after capital stock depreciation and then divided by capital asset value of the fleet. The subsidies are excluded from the calculation. According to the guidelines the ROI positive and greater than the low risk long-term interest rate shows positive return generated by the investment and suggesting that extraordinary profits are being generated, a sign of economic under-capitalization. Values of ROI positive but smaller than the low risk interest rate would yield negative values for the indicator indicating that in the long-term it would more beneficial to invest elsewhere which is a sign that probably the fleet is overcapitalized and therefore economically inefficient. Negative ROIs can by themselves indicate economic over-capitalization. ROI results and calculations for each fleet segment are presented in Table 5 and Annex IV.

Table 5. Return on Investment (ROI – risk-free long-term interest rate %)

Fleet Segments	2017	2018	2019	2020	2021
VL0010 PGP	-17	31	-34	125	71
VL1218 TM	49	110	-409	402	297
VL2440 TM	26	171	178	249	175

Application and interpretation

During the analyzed period from 2017 to 2021 the ROI indicator has stable positive values for the segment trawlers VL2440 that characterizes a cost-effective segment activity. The main factor is that the segment target species are sprat and herring which provide the necessary turnover for the segment. The sprat and herring catches contributed 50% and 44% respectively to total Latvian volume of landing as well as 50% and 38% respectively to total Baltic Sea value of landing in 2021.

In turn, the ROI indicator for the segment VL1218 trawlers operating in the Gulf of Riga was positive during the analyzed period from 2017 to 2021 except 2019. The negative ROI in 2019 were occurred due to the sharp increase in total operating costs by 48%.

The negative ROI was shown in 2017 for the vessel segment VL0010 and in 2019 for the coastal vessels attributed to the segment VL0010 and segment VL1218. The negative ROI in 2017 was caused by the sharp increase in total operating costs by 84% for segment VL0010. In its turn in 2019 the negative ROI was caused by decrease in the volume and value of landing by 24% and 46% respectively due to the decline in average fish price for both segments. Decline of ROI indicator by 43% in 2021 for the vessel segment VL0010 could be explained by drastically decrease of other income by 98% (around 1 mil.) in comparison to 2020. Decrease of ROI indicator by 26% in 2021 for the vessel segment VL1218 could be explained by increasing of energy costs and variable costs by 12% and 92% respectively. Decrease of ROI indicator by 30% in 2021 for the vessel segment VL2440 could be explained by increasing of variable costs by 22% and reduction of value of landing and weight of landing by 5%.

In general, during the analyzed period 2017-2021 the ROI ratio greater than 1 indicates that the economic activity of the segments VL2440, VL1218 and VL0010 are cost-effective in the long-term. However, if the negative impact from the changes in fish price and too high average expenditures per vessel persist, it could directly be influential to the fishing fleet future profitability.

It should also be noted that the potential capacity can be exploited by 20-40% more for some vessels in segments VL1218 and VL2440. If intensity of fishing for some vessels in the segments VL1218 and 2440 will increase, the segments could obtain greater amount of catch and higher revenue from sales, which in turn could facilitate a profit growth.

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)

The break-even revenue (BER) is the revenue required to cover both fixed and variable costs, that no losses are incurred and no profits are generated. The current revenue (CR) is the total operating income of the fleet segment, which consists of income from landings and non-fishing income. Data on subsidies were excluded from the calculation. In addition, income and expenditures from the fishing rights has 0 values due to the absence of fishing rights market in Latvia. The opportunity costs are included in the calculation.

According to the definition in the Guidelines, the ratio between fleet current revenue and break-even revenue shows how close the current revenue of a fleet is to the revenue required for the fleet to break even in the short-term. If the ratio is greater than 1, then enough income is generated to cover variable, fixed and capital costs, indicating that the segment is profitable, with potential under-capitalization. Conversely, if the ratio is less than 1, insufficient income is generated to cover variable, fixed and capital costs, indicating that the segment is unprofitable, with potential over-capitalization. If the CR/BER result is negative, this means that variable costs alone exceed current revenue, indicating that the more revenue is generated, the

greater the losses will be. Ratio between current revenue and 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 6 and Annex V.

Table 6. Ratio of Current revenue to Break-even revenue CR/BER)

Fleet Segments	2017	2018	2019	2020	2021
VL0010 PGP	0.16	0.49	-0.24	2.08	0.85
VL1218 TM	0.42	1.05	-0.04	4.90	2.77
VL2440 TM	0.44	1.46	1.56	1.89	1.33

Application and interpretation

The trawlers segment VL2440 operating in the Baltic Sea offshore zone show CR/BER ratio positive and greater than 1 from 2018 to 2021, characterizing the segment profitability in the short-term. Despite the decrease of CR/BER indicator value by 30% in 2021, average value of indicator in period 2018-2021 constitute 1.56. For vessel segment VL1218 the CR/BER indicator value in 2021 decreased by 43% and consist 2.77, characterizing the segment profitability in the short-term. In 2021 CR/BER indicator for vessel segment VL0010 reduced by 59% and consist 0.85. It's indicating, that insufficient income is generated to cover variable, fixed and capital costs, indicating that the segment is unprofitable, with potential over-capitalization.

The segment VL0010 contributed only 9% to total Latvian value of landing during analyzed period and does not have significant impact to the economic situation in the Latvian fishery. The CR/BER indicator fluctuates from year to year for all three segments and show stable profitable fishery in 2021 for segments VL1218 and VL2440, while for segment VL0010 indicator value is just below reference point.

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

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

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[1]	GT*days[2]
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 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[1]	kW*days[3]
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

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[1]	kW*days[3]
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

[1] ratio between average days at sea and maximum days at sea.

[2] ratio between average GT*days at sea and maximum GT*days at sea.

[3] ratio between average kW*days at sea and maximum kW*days at sea.

Annex III

Biological indicators SHI for Latvian Fleet segments in 2019-2021

Area	Fleet segment	Parameters	2019				2020				2021			
			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	210	7506	34821		49	5825	27029		7	3655	26846	
		F c	n/d	0.45	0.38		n/d	0.46	0.37		n/d	0.29	0.42	
		Fmsy	n/d	0.28	0.26		n/d	0.21	0.37		n/d	0.21	0.32	
		F/Fmsy		**1.61**	**1.46**			**2.19**	**1.19**			**1.38**	**1.31**	
		F/Fmsy for segment		**1.49**				**1.16**				**1.32**		
28.1 Gulf of Riga (GOR)	VL1218 trawlers	Catch,t	n/d		996	6426	n/d		709	7264	n/d		632	7708
		F c	n/d		0.38	0.28	n/d		0.37	0.24	n/d		0.42	**0.22**
		Fmsy	n/d		0.26	0.32	n/d		0.37	0.32	n/d		0.32	**0.24**
		F/Fmsy			**1.46**	**0.88**			**1.00**	**0.75**			**1.31**	**0.92**
		F/Fmsy for segment			**0.95**				**0.77**				**0.95**	
	VL2440 trawlers	Catch,t	n/d		2893	9526	n/d		1155	11898	n/d		1609	12603
		F c	n/d		0.38	0.28	n/d		0.37	0.24	n/d		0.42	**0.22**
		Fmsy	n/d		0.26	0.32	n/d		0.37	0.32	n/d		0.32	**0.24**
		F/Fmsy			**1.46**	**0.88**			**1.00**	**0.75**			**1.31**	**0.92**
		F/Fmsy for segment			**1.01**				**0.77**				**0.96**	

Annex IV

ROI calculation

Year	Values for calendar year (€000)	VL0010PGP	VL1218TM	VL2440TM
2017	Income from landings + other income	1 223 394	2 871 084	17 618 796
	Low risk long term interest rate %	1.61	1.61	1.61
	Crew costs + unpaid labour costs + fuel costs + repair & maintenance costs + other variable costs + non variable costs	1 097 354	2 186 827	13 148 491
	Capital costs (depreciation + interest payments)	303 966	121 156	2 048 458
	Net profit = (Income from landings + other income) – (crew costs + unpaid labour + energy costs + repair and maintenance costs + other variable costs + non variable costs + depreciation)	-177 926	563 101	2 421 846
	Fleet capital asset value (vessel replacement value + estimated value of fishing rights)	1 150 165	1 119 599	8 630 287
	ROI = Net profit / capital asset value %	**-15.47**	**50.29**	**28.06**
	ROI – risk-free long-term interest rate %	**-17.08**	**48.68**	**26.45**
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
	ROI = Net profit / capital asset value %	**32.08**	**110.99**	**171.58**
	ROI – risk-free long-term interest rate %	**31.18**	**110.09**	**170.68**
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 (economic) = (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
	ROI = Net profit / capital asset value %	**-33.25**	**-408.35**	**178.27**
	ROI – risk-free long-term interest rate %	**-33.97**	**-409.07**	**177.55**

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 (economic) = (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 043707	5 477 662
	Fleet capital asset value (vessel replacement value + estimated value of fishing rights)	1 003 297	259 541	2 193 438
	ROI = Net profit / capital asset value %	**125.27**	**402.14**	**249.73**
	ROI – risk-free long-term interest rate %	**124.77**	**401.64**	**249.23**
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 (economic) = (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
	ROI = Net profit / capital asset value %	**71.64**	**297.78**	**175.75**
	ROI – risk-free long-term interest rate %	**70.78**	**296.92**	**174.89**

* Net profit (economic) from 2018, calculated by PIM; Net profit (financial) for 2017 (based on data collected by Latvian Central Statistical Bureau).

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	VL1218 TM	VL2440 TM
2017	1	Current revenue (CR) = Income from landings + other income	1 223 394	2 871 084	17 618 796
	2	Fixed costs = Non variable costs + depreciation +opportunity of capital	2 420 402	2 141 086	20 625 599
	3	Variable costs = Crew costs + Unpaid labour costs + Energy costs + Repair & maintenance costs + Other variable costs	832 684	1 969 451	8 466 112
	4	BER = 2 / (1 - [3 / 1])	7 578 781	6 817 895	39 704 008
	5	**CR / BER = 1 / 4**	**0.16**	**0.42**	**0.44**
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	**CR / BER = 1 / 4**	**0.49**	**1.05**	**1.46**
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	**CR / BER = 1 / 4**	**-0.24**	**-0.04**	**1.56**
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	**CR / BER = 1 / 4**	**2.08**	**4.90**	**1.89**

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	**CR / BER = 1 / 4**	**0.85**	**2.77**	**1.33**

Annex VI

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

VL1218TM								
Indicator	**Definition**	**ICES area**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
ECONOMIC1	**ROI**	Area 27 SD 28.1	positive ROI under-capitalization	positive ROI under-capitalization	negative ROI over-capitalization	positive ROI under-capitalization	positive ROI under-capitalization	*NA
ECONOMIC2	**CR/BER**	Area 27 SD 28.1	0<0.42<1 current revenue covers the current costs	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	*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	0.95	0.94	0.92	0.99	0.93	1
BIOLOGICAL1	**SHI - Ratio between F estimated and F target (MSY)**	Area 27 SD 28.1	1.01	0.84	0.95	0.77	0.95	**NA
BIOLOGICAL2	**SARI - Stock-at-risk**	Area 27 SD 28.1						

*NA – not applicable. The economic data for 2022 will be available in November-December of 2023.
**NA – not applicable. In the latest ICES advice information about Fc and Fmsy is provided for 2021.

VL2440TM								
Indicator	**Definition**	**Area**	**2017**	**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	0<0.44<1 current revenue covers the current costs	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	*NA
TECHNICAL1	**IFI - Proportion of inactive vessels**	Area 27 SD 22-32	4.3 (<10%)	9.1 (<10%)	13.9	20	29	16.1
TECHNICAL2	**VUI-Vessel utilisation (Ratio between average and maximum effort per vessel, kW*days)**	Area 27 SD 22-32	0.65 (<0.7)	0.73	0.66 (<0.7)	0.67 (<0.7)	0.68 (<0.7)	0.69 (<0.7)
BIOLOGICAL1	**SHI - Ratio between F estimated and F target (MSY)**	Area 27 SD 22-32	1.11	1.24	1.49	1.21	1.32	**NA
		Gulf of Riga	1.01	0.86	1.01	0.77	0.96	**NA
BIOLOGICAL2	**SARI - Stock-at-risk**	Area 27 SD 22-32	Not calculated					

*NA – not applicable. The economic data for 2022 will be available in November-December of 2023.

**NA – not applicable. In the latest ICES advice information about Fc and Fmsy is provided for 2021.

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 2022 will be available in November-December of 2023.

Annex VII

ACTION PLAN RELATING TO FLEET REPORT 2022 OF LATVIA

1. Introduction

Member States compile an annual report on the balance between the fishing capacity of their fleets and their fishing opportunities to meet the aim of Article 22(1) of Regulation (EU) No 1380/2013 of the European Parliament and of the Council, which states: "*Member States shall put in place measures to adjust the fishing capacity of their fleet to their fishing opportunities over time*".

To achieve a balance between capacity and fishing opportunities, the fleets of the different Member States are segmented based on main gear used and length size of vessels. To evaluate each of this segment common indicators of vessel activity, economical and biological indicators are established. The methodology for calculating these indicators shall follow the guidelines set out in COM (2014) 545 final.

Article 22(3) of the COM (2014) 545 final states that: "*If the assessment clearly demonstrates that the fishing capacity is not effectively balanced with fishing opportunities, the Member State shall prepare and include in its report an action plan for the fleet segments with identified structural overcapacity*".

This Action Plan identifies fleet segment VL2440 which indicators clearly show that the respective capacity is not in balance with fishing opportunities.

2. Technical Indicators

Latvian fleet segment of trawlers VL2440 was historically targeted to three stocks in Baltic Sea: sprat, herring and cod. Due to implemented in 2019 targeted cod fishery ban in eastern part of the Baltic Sea, part of the fleet segment VL2440, which were involved in demersal fishery were decommissioned. Measures to balance segment VL2440 were described in Action Plan included into The Annual Report on the Latvian Fishing Fleet 2019. Despite on implemented measures the fishing quota of sprat and herring is reducing in last few years, what negatively influence the technical and biological indicators of fleet segment VL2440. The values of two technical indicators in period of 2019-2022 are in red zone according to the traffic light system.

Started from 2019 level of inactive vessels exceed the threshold value (10%) (**Fig.1**). Decommissioning of demersal fleet of segment VL2440 positively influenced the inactivity level and in 2022 IFI indicator is reduced almost by half and conducted 16%. Despite of improvement there is high probability that if quota of herring and sprat will be on the existent level and even worse if quota will be reduced then the level of inactive vessel will be definitely greater than the threshold of 10%.
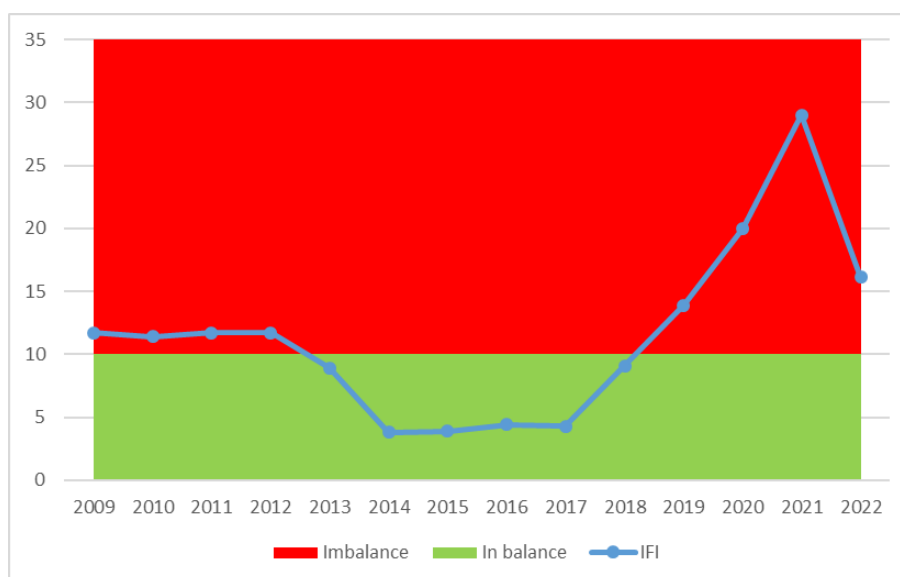

Fig.1. Level of the Inactive Fleet Indicator (IFI) in 2009-2022.

The values of the Vessel Utilisation Indicator of the fleet segment VL2440 in period 2009-2022 is below the threshold value of 70% except 2018 when it's reached 73% (**Fig.2**). It clearly shows that fleet segment VL2440 is imbalance between capacity and opportunity of fishing activity. Decommissioning of most active vessels would let to the rest vessels in the segment work more actively by fulfilling the sprat and herring quota in the Baltic Sea.
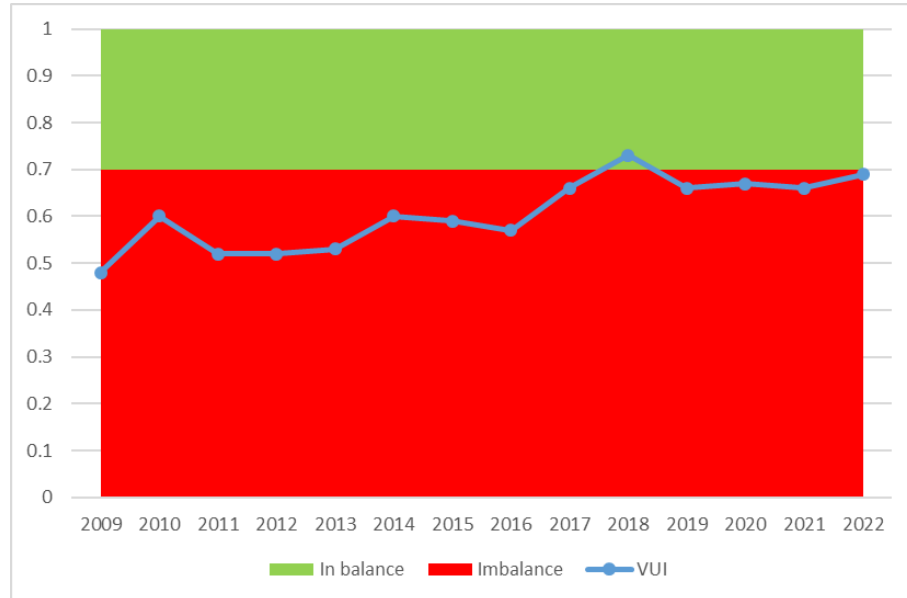

Fig.2. Level of Vessel Utilisation Indicator in 2009-2022.

3. Biological Indicators

A review of changes in the SHI indicator values in 2009-2021 for the fleet segment VL2440 (**Fig. 3**) shows us that noticeable dominance of values above 1 indicate that a fleet segment is, on average, relying for its income on fishing opportunities which are structurally set above levels corresponding to exploitation at levels corresponding to MSY. This is an indication of imbalance of fleet segment VL2440 as SHI value is above 1 in last 5 years.
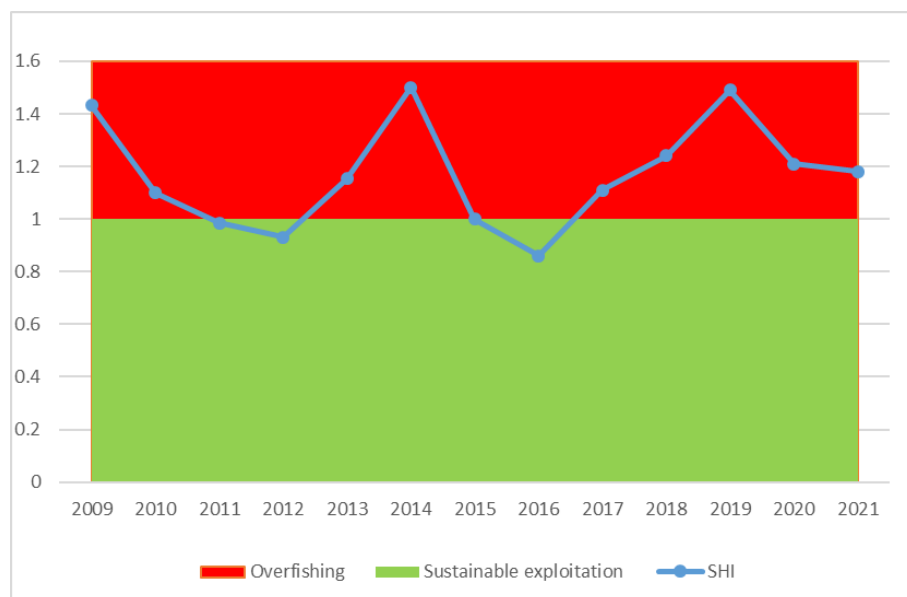

Fig.3. Level of Sustainable Harvest Indicator in 2009-2022.

4. Description of fleet segment VL2440

After decommissioning of vessels which used bottom otter trawls from the fleet segment VL2440, midwater otter trawl is a main fishing gear. The main target species are sprat and Baltic herring. The fleet segment VL2440 in 2022 consisted of 31 vessels with overall engine power equal to 10942 and overall gross tonnage equal to 4430 (**Table 1**). Only 26 vessels were active in 2022. Five vessels were inactive in 2022 due to unavailability of free quota of herring and sprat.

Table 1. Description of fleet segment VL2440

2022	Number	KW	GT
Active	26	9693	3949
Inactive	5	1249	481
Total	**31**	**10942**	**4430**

5. Aims to be achieved

With the aim of adjusting fleet capacity to available resources, the goal of fleet reduction was set based on highest activity in last two years. The aim of adjusting fleet capacity to available resources will be achieved through the permanent withdrawal from activity of a number of vessels, which were involved in sprat and herring fishery and spent at least 90 days at sea per year in last two years. An overall reduction in the fleet segment VL2440 is planned up to 30% less vessels, up to 34% less gross tonnage and up to 32% less engine power (**Table 2**).

Table2. Aim of reduction fleet segment VL2440

	Number	KW	GT
Total	9	3500	1500

6. Action Plan Implementation Schedule

The fleet adjustment recommended to implement until 31-12-2023.

7. Applicable Financial Instruments

European Maritime, Fisheries and Aquaculture Fund could be used for reduction of fleet capacity according to this plan.