

## POLAND

### Annual report on Poland's efforts to achieve balance between fishing capacity and fishing opportunities

#### for the period from 1 January to 31 December 2016

#### Introduction

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

#### **I. SUMMARY OF THE REPORT**

As at 31 December 2016, the Polish fishing fleet comprised 843 fishing vessels (including vessels fishing on the Vistula and Szczecin Lagoons). The total fishing capacity of these vessels was 34 871.25 GT and 83 047.28 kW. Polish fisheries are generally divided into two main sectors: Baltic Sea fisheries (where the majority of the fleet operates) and deep-sea fisheries.

The main fish species caught by Polish fishermen in the Baltic Sea are cod, sprat, herring, salmon, sea trout and flatfish. Polish deep-sea vessels primarily fish for horse mackerel, cod, saithe, sardine, scabbardfish, hake and mackerel.

Since its accession to the European Union, Poland has strictly complied with the vessel entry/exit scheme to balance the fleet's fishing capacity, as referred to in Article 23(1) of Regulation (EU) No 1380/2013.

#### **II. Opinion on the balance between fishing capacity and stocks**

Given the available living marine resources and the fishing opportunities allocated to Poland in the Baltic Sea, it should be concluded that the existing fleet requires changes.

Between its accession to the European Union and the end of 2013, Poland reduced its fishing capacity by more than 40 %.

The segments of the fishing fleet for which a significant imbalance between fishing capacity and the available fishing opportunities (**VL1012 PG** – vessels with an overall length of 10 m to 12 m, fishing with nets and other passive gear and **VL1218 DFN** – vessels with an overall length of 12 m to 18 m, fishing with nets) and a slight imbalance between fishing capacity and the available fishing opportunities (**VL1218 DTS** – demersal trawlers with an overall length of 12 m to 18 m and **VL1824 DTS** – demersal trawlers with an overall length of 18 m to 24 m) were identified in the report for the period from 1 January to 31 December 2014 and from 1 January to 31 December 2015 were covered by a programme of permanent and temporary cessation of fishing activities (2014-2020 Operational Programme 'Fisheries and the Sea'), financed from the budget of the European Maritime and Fisheries Fund.

The fishing fleet was further reduced as a result of the implementation of Measure 1.6.

*Permanent cessation of fishing activities* under Priority 1. *Promoting environmentally sustainable, resource efficient, innovative, competitive and knowledge based fisheries* of the 2014-2020 Operational Programme 'Fisheries and the Sea' in 2016. A total of 33 fishing vessels with a total fishing capacity of 856.02 GT and 2 629.20 kW were withdrawn from commercial fishing by the end of 2016. Ultimately, 29 vessels were permanently withdrawn through scrapping, two vessels with wooden hulls were withdrawn without scrapping through reclassification for land-based non-profit-making activities related to cultural heritage, and two vessels were withdrawn without scrapping through reclassification for non-profit-making activities not related to commercial fishing.

Notwithstanding the above, it should still be borne in mind that dynamic changes in the composition of the fish fauna of the Baltic Sea, the uncertainty of the scientific advice provided by the International Council for the Exploration of the Sea (ICES) in this respect, and the fluctuating availability of fishing opportunities result in a temporary imbalance between fishing capacity and available stocks.

The latest biological, technical and economic indicators for the fishing fleet, which are presented in Chapter VIII, Section F *Estimation and discussion of balance indicators* and Chapter IX *Analysis and evaluation of the balance between fishing capacity and fishing opportunities for each segment of the fishing fleet over three consecutive years* of this report, show that some segments of the fishing fleet are still not effectively balanced with the available fishing opportunities.

In accordance with Article 22(4) of Regulation (EU) No 1380/2013, an action plan was prepared for the segments of the fishing fleet with identified structural overcapacity. The action plan forms an integral part of this report and is included in Chapter X.

### III. SECTION A

#### Description of the fishing fleet

Polish fisheries are generally divided into two main sectors:

- **Baltic Sea fisheries** (where the majority of the fleet operates),
- **deep-sea fisheries**.

As at 31 December 2016, the Polish Baltic Sea fleet comprised 839 fishing vessels. The total fishing capacity of these vessels was 16 152.69 GT and 63 036.28 kW. This fleet is made up of fishing vessels operating in the Baltic Sea and the internal marine waters, including the Vistula and Szczecin Lagoons.

As at 31 December 2016, the Polish deep-sea fleet comprised four fishing vessels. The total fishing capacity of these vessels was 18 718.56 GT and 20 011.00 kW. The deep-sea fleet is made up of fishing vessels operating exclusively in waters outside the Baltic Sea and outside Poland's internal waters.

#### Types of fishing operations carried out

##### **Baltic Sea fisheries**

The main fish species caught by Polish fishermen in the Baltic Sea are cod, sprat, herring, salmon, sea trout and flatfish. Among the main Baltic Sea species, the most important for Polish fishermen (in particular for the coastal fleet) are catches of cod, which are subject to restrictions resulting, *inter alia*, from a recovery plan for this species (significant annual reductions in fishing quotas, biological rest periods and restrictions on the use of certain fishing gear). Catches of pelagic fish (sprat and herring) make up a significant portion of Polish fishermen's income. Sea trout and flatfish are also considered good catches and are equally valuable in economic terms. In 2016, catches in the Baltic Sea were as follows: cod (sub-areas 22-32) – 10 346.84 tonnes, salmon – 3 623 fish, sprat – 60 046.79 tonnes, plaice – 157.22 tonnes, western herring (sub-areas 22-24) – 2 844.37 tonnes, central herring (sub-areas 25-27, 28.2, 29 and 32) – 41 211.43 tonnes, sea trout – 42 398 fish and flounder – 15 060 tonnes.

##### **Deep-sea fisheries**

Deep-sea vessels operated mainly in areas managed by the North-East Atlantic Fisheries Commission (NEAFC) and in Norwegian waters. In 2016, Polish vessels also fished in African waters under the jurisdiction of the Kingdom of Morocco, the Islamic Republic of Mauritania and the Republic of Namibia. Deep-sea vessels also operated in the South Pacific (SPRFMO). In NEAFC fisheries, Polish deep-sea vessels primarily fish for cod, haddock, saithe, redfish and halibut. The main species caught in the fisheries of West Africa were mackerel, horse mackerel, sardine and scabbardfish, while Chilean jack mackerel was the main species caught in the South Pacific. Poland's deep-sea quotas are fully utilised, either through catches or the exchange of quotas, primarily with Germany, the United Kingdom, Latvia, Estonia, Spain and Portugal. Opportunities for the development of the Polish deep-sea fleet depend on obtaining fishing opportunities in deep-sea fisheries. In 2016, the deep-sea catches amounted to approx. 59 900 tonnes in total.

#### Changes in the fleet

Changes in the fleet, broken down into the Baltic Sea fleet and the deep-sea fleet, are presented in the table below.

	As at 31 December 2015			As at 31 December 2016			Change		
	GT	kW	Number of vessels	GT	kW	Number of vessels	GT	kW	Number of vessels
<b>Total</b>	<b>34 216.22</b>	<b>81 544.88</b>	<b>875</b>	<b>34 871.25</b>	<b>83 047.28</b>	<b>843</b>	<b>+ 655.03</b>	<b>+ 1 502.40</b>	<b>- 32</b>
<b>Deep-sea fleet</b>	<b>17 251.00</b>	<b>14 591.00</b>	<b>3</b>	<b>18 718.56</b>	<b>20 011.00</b>	<b>4</b>	<b>+ 1 467.56</b>	<b>+ 5 420</b>	<b>+ 1</b>
<b>Baltic Sea fleet</b>	<b>16 965.22</b>	<b>66 953.88</b>	<b>872</b>	<b>16 152.69</b>	<b>63 036.28</b>	<b>839</b>	<b>- 812.53</b>	<b>- 3 917.60</b>	<b>- 33</b>

At the same time, the fishing fleet was undergoing modernisation, which included the conversion and replacement of engines. Fishing vessels were modernised by their owners, who used their own funds.

In 2016, six fishing vessels were modernised using additional fishing capacity allocated by the minister responsible for fisheries before 4 March 2015 (in accordance with the *Principles governing the allocation of fishing capacity available to the Minister for Agriculture and Rural Development* adopted in 2010, prepared by a team of representatives of the fishing community appointed by Order No 3 of the Minister for Agriculture and Rural Development of 18 March 2010) of 11.7 GT in total.

Following the entry into force on 4 March 2015 of the *Sea Fisheries Act* of 19 December 2014 (Journal of Laws (*Dziennik Ustaw*) 2015, item 222, as amended), which granted authorisation to establish, by means of a regulation, the criteria and procedure for allocating additional fishing capacity, additional fishing capacity was not allocated in 2016 as rules in that regard were not issued.

In 2016, the deep-sea fleet was increased to four fishing vessels after one fishing vessel with a gross tonnage of 1 467.56 GT and the main engine power of 5 420 kW was entered in the register.

Following the launch of Measure 1.6. *Permanent cessation of fishing activities* under the 2014-2020 Operational Programme 'Fisheries and the Sea', 33 fishing vessels with a total fishing capacity of 856.02 GT and 2 629.20 kW were withdrawn from commercial fishing by the end of 2016.

## IV. SECTION B

### Impact of fishing effort reduction schemes on the fishing capacity of the fleet

As a result of the launch of Measure 1.6. *Permanent cessation of fishing activities* under the 2014-2020 Operational Programme 'Fisheries and the Sea' in 2016, 33 fishing vessels with a total fishing capacity of 856.02 GT and 2 629.20 kW were withdrawn from commercial fishing.

## V. SECTION C

### Compliance with the entry/exit scheme and the fishing capacity ceiling for the fleet

In the reporting period, Poland strictly complied with the vessel entry/exit scheme to balance the fleet's fishing capacity in accordance with Article 23(1) of Regulation (EU) No 1380/2013.

The fishing capacity of the Polish fishing fleet entered in the fishing vessel register as at 31 December 2016 was 34 871.25 GT and 83 047.28 kW.

Pursuant to Article 22(7) of Regulation (EU) No 1380/2013, the fishing capacity of the Polish fleet specified in the fishing vessel register did not exceed the fishing capacity ceiling set for Poland in Annex II to that Regulation at any time.

## VI. SECTION D

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

#### Plans for improving the fleet management system

#### Information on the level of compliance with fleet policy instruments

Poland fully complies with restrictions in the fleet's fishing capacity under EU law applicable to the vessel entry/exit scheme to balance the fleet's fishing capacity. The fishing capacity of the Polish fleet specified in the fishing vessel register did not exceed the fishing capacity ceiling set for Poland in Annex II to Regulation (EU) No 1380/2013 at any time.

A complex IT system is the key feature of the system for managing the Polish fishing fleet. This system comprises a central database containing information needed for the proper functioning of fisheries administration and used to monitor fishing operations. The system takes into account the interdependent nature of procedures related to the registration of vessels, fishing licences and permits, catches registration and accounting, and features a statistical mechanism used to generate a comprehensive set of reports. In addition, the system features a module for recording electronic reports sent in accordance with Council Regulation (EC) No 1224/2009<sup>1</sup> and Commission Implementing Regulation (EU) No 404/2011<sup>2</sup>. This system was designed using a modern IT technology which provides, *inter alia*, greater functionality and operating speed, and can be accessed by all authorised users via the internet. A new 'infringements module' was added to the existing system in 2015 to make it possible to record infringements committed by Polish fishing vessels and document the entire administrative procedure conducted in the case concerned.

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

<sup>2</sup> Commission Implementing Regulation (EU) No 404/2011 of 8 April 2011 laying down detailed rules for the implementation of Council Regulation (EC) No 1224/2009 establishing a Community control system for ensuring compliance with the rules of the Common Fisheries Policy (OJ L 112, 30.4.2011, p. 1-153).

A modern satellite VMS fishing vessel monitoring system (Vtrack) became fully operational in 2009 and operated correctly in 2016.

An electronic recording and reporting system (ERS-Vcatch) for electronic reporting of catch and landing documents in accordance with Council Regulation (EC) No 1224/2009 and Commission Implementing Regulation (EU) No 404/2011 was deployed in January 2011. Work to enable the electronic recording and reporting of fishing activities and electronic transmission of landing/transshipment declarations was carried out on all Polish vessels with an overall length of more than 12 m. In 2016, all catches by these vessels were recorded in electronic fishing logbooks.

An automatic, SMS-based advance registration system deployed in 2011 operated correctly in 2016. Data sent from fishing vessels were automatically entered in real time into a single database, which could be accessed by inspectors via the internet.

Balance between fishing capacity and the available living marine resources must be achieved in order to effectively manage the fishing fleet. Therefore, it will be crucial to adjust the size and structure of the fleet to the fishing opportunities allocated to Poland in the near future. The management of both areas, previously based on rules arising directly from EU law and the 2004 Act, was modified and strengthened in the new *Sea Fisheries Act* of 19 December 2014, which has been in force since 4 March 2015.

The arrangements adopted include conferring on the minister responsible for fisheries the power to manage fishing capacity. This will make it possible to effectively use the fishing capacity ceiling allocated to Poland (GT/kW), which, since it is steadily decreasing, should, as far as possible, be linked at all times to vessels actively involved in commercial fishing. The rules provide for:

- the designation of three fleet segments based on their areas of operation (the internal marine waters fleet, the Baltic Sea fleet and the deep-sea fleet) and on the maximum fishing effort that can be exerted in the segment concerned (i.e. fishing in the waters concerned). This means managing the fleet's fishing effort by defining its structure and has no impact on the overall fishing capacity ceiling (GT/kW) allocated to Poland<sup>3</sup>.
- the loss by a vessel owner of the right to make use of individual fishing capacity after a period of five years from the last landing of marine organisms caught by that fishing vessel if this capacity is not subsumed in that period by another vessel actively engaged in fishing;
- a procedure for the management of spare fishing capacity by the minister responsible for fisheries, which will involve supporting fleet modernisation and, if necessary, redirecting some vessels to sectors where different species are caught, thus reducing the pressure on fishing for species whose stocks need to recover;
- the strengthening of the capacity to avoid excessive fragmentation of fishing capacity through 'cloning' (this includes the refusal to register more than one new fishing vessel in place of a decommissioned vessel).

## VII. SECTION E

### Information on changes to administrative procedures applicable to fleet management

Administrative procedures for the management of the Polish fishing fleet were expanded

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<sup>3</sup> Due to historical rights and the specific nature of Polish fishing, some small fishing vessels can operate in two segments (the Baltic Sea and internal marine waters), which does not, however, affect the overall fishing capacity ceiling (GT/kW) allocated to Poland.

following the entry into force of the *Sea Fisheries Act* of 19 December 2014 (Journal of Laws 2015, item 222, as amended) on 4 March 2015.

Prior to the entry into force of that Act, the entry and removal of vessels from the fishing vessel register and changes to register entries were purely technical tasks. Following the entry into force of the Act, the entry and removal of vessels from the register and changes to register entries are subject to decisions (Article 14(1)). At the same time, the removal of fishing vessels from the register, which was previously governed by Article 11 of the *Fisheries Act* of 19 February 2004 (Journal of Laws No 62, item 574, as amended), now takes the form of withdrawal of the vessel concerned from commercial fishing (which is also subject to decisions (Article 19 of the *Sea Fisheries Act*)). In practice, this means that the performance of technical tasks related to the entry of a fishing vessel into the register, changes to a register entry and the withdrawal of a fishing vessel from commercial fishing requires an appropriate decision by the minister responsible for fisheries.

Furthermore, the above *Sea Fisheries Act* introduced a requirement to distinguish **fleet segments** comprising fishing vessels engaged in commercial fishing. Accordingly, the following three segments of the fishing fleet were distinguished under Article 9(1) of that Act:

1) with an overall length of not less than 5 m: in the open waters of the Baltic Sea, the areas of the exclusive economic zone and the territorial sea, the Puck Bay and the Bay of Gdańsk;

2) with an overall length of up to 12 m: in the areas referred to in Article 4(1) and (3) of the Act of 21 March 1991 *on the maritime areas of the Republic of Poland and maritime administration* and in the areas north of the boundary between maritime and inland waters determined in implementing rules issued under Article 3;

3) in maritime areas other than those listed in points 1 and 2 (deep-sea fisheries).

**Fishing capacity ceilings** were also determined for the above fleet segments. In accordance with Article 9(2) of the *Sea Fisheries Act*, fishing capacity for the segment of the fleet of fishing vessels engaged in commercial fishing:

1) in the open waters of the Baltic Sea, the areas of the exclusive economic zone and the territorial sea, the Puck Bay and the Bay of Gdańsk, with an overall length of not less than 5 m, cannot exceed 16 797.41 GT and 64 043.59 kW;

2) in the areas referred to in Article 4(1) and (3) of the Act of 21 March 1991, with an overall length of up to 12 m, cannot exceed 950.07 GT and 7 964.7 kW;

3) in maritime areas other than those listed in points 1 and 2 cannot exceed 21 526 GT and 22 441 kW.

## VIII. SECTION F

### Estimation and discussion of balance indicators

The following indicators for assessing the balance between fishing capacity and fishing opportunities were calculated by the National Marine Fisheries Research Institute (Morski Instytut Rybacki-Państwowy Instytut Badawczy, MIR-PIB) in Gdynia at the request of the Department of Fisheries at the Ministry of Maritime Economy and Inland Navigation in 2017.

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

**Biological indicators** (the *sustainable harvest indicator* and the *stocks-at-risk indicator*) and **technical indicators** (the *inactive fleet indicator* and the *vessel utilisation indicator*) were prepared for 2014-2016.

As the economic data collection cycle is determined by accounting principles governing economic operators and procedures for approving these principles, **economic indicators** can be calculated for 2013-2015.

Table 1 shows the values of individual parameters relevant for analysing the sustainability of the fleet's activities. A new segment, VL1012 DTS, was distinguished for the first time in the data presented (due to the number of vessels). The economic data for this segment will be provided in 2018.

Data sources did not change compared with the assumptions on which the previous indicators were based. The data come from ICES advice documents for Baltic stocks from 2015-2017 and economic data for 2013-2015 collected and approved under the Data Collection Framework (DCF).

The MIR-PIB calculated the following indicators for the Polish fishing fleet:

- **biological indicators (for 2014-2016):**  
*sustainable harvest indicator,*  
*stocks-at-risk indicator;*
- **technical indicators (for 2014-2016):**  
*vessel utilisation indicator,*  
*inactive fleet indicator;*
- **economic indicators (for 2014-2016):**  
*return on investment (ROI) vs next best alternative,*  
*ratio between current revenue (CR) and break-even revenue (BER) (CR/BER).*

The analysis of the indicators was conducted for the following segments of the Polish fishing fleet:

- **VL0010 PG:** vessels with an overall length of up to 10 m, fishing with nets and other passive gear,
- **VL1012 PG:** vessels with an overall length of 10 m to 12 m, fishing with nets and other passive gear,
- **VL1218 DFN:** vessels with an overall length of 12 m to 18 m, fishing with nets,
- **VL1012 DTS:** demersal trawlers with an overall length of 10 m to 12 m (a segment distinguished in 2016 alone, as a result of which only technical and biological data on this segment are available; economic data will be available in 2018),



- **VL1218 DTS:** demersal trawlers with an overall length of 12 m to 18 m,
- **VL1824 DTS:** demersal trawlers with an overall length of 18 m to 24 m,
- **VL1824 TM:** pelagic trawlers with an overall length of 18 m to 24 m,
- **VL2440 TM:** pelagic trawlers with an overall length of 24 m to 40 m.

## Biological indicators for 2014-2016

### 1. Sustainable harvest indicator

This indicator reflects the extent to which the fleet segment concerned relies on overfished stocks. As in previous years, the target fishing mortality was  $F_{msy}$ , i.e. the mortality leading to the maximum sustainable yield (MSY) over a multi-year period.

The value of the indicator was determined on the basis of stocks for which ICES prepares the  $F/F_{msy}$  indicator:

- Western Baltic cod (sub-areas 22-24),
- Eastern Baltic cod (sub-areas 25-32) (from 2017,  $F/F_{msy}$  is determined using the stock-production model (SPiCT)),
- Western Baltic herring (sub-areas 20-24),
- Central Baltic herring (sub-areas 25-29 and 32),
- Baltic Sea sprat (sub-areas 22-32).

The *sustainable harvest indicator* for individual fleet segments is determined on the basis of all stocks (n) for which there is sufficient data. The *sustainable harvest indicator* is the average of the indicators  $F/F_{msy}$  for individual stocks (i) weighted by landings of these stocks ( $V_i$ ):

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

**The lower the value of the indicator, the less the fleet segment concerned relies on overfished stocks. This indicator should not exceed 1.**

According to guidelines by the Scientific, Technical and Economic Committee for Fisheries (STECF), the indicator cannot be calculated if more than 60 % of catches are those of stocks for which the fishing mortality and  $F_{msy}$  are not determined. Calculating the indicator based on CPUE (catch per unit of effort) is not recommended. In 2014-2016, the above stocks accounted for approx. 80 % of the total catches of the Polish fleet. The values of the *sustainable harvest indicator* are presented in Table 3.

**Table 1. Sustainable harvest indicator for the analysed segments of the Polish fleet in 2014-2016**

Fleet segment	2014	2015	2016
VL0010 PG	0.88	0.98	1.06
VL1012 PG	1.43	1.47	1.49
VL1218 DFN	1.54	1.69	1.54
VL1012 DTS	--	--	1.71
VL1218 DTS	1.45	1.40	1.26
VL1824 DTS	1.28	1.24	1.08
VL1824 TM	1.25	1.11	0.91
VL2440 TM	1.14	1.07	0.89

It should be stressed that the  $F/F_{msy}$  ratio was determined for the Eastern Baltic cod stocks in 2017, which is why these stocks were taken into account when determining the indicator. The indicator was also updated for 2014-2015 as  $F/F_{msy}$  was determined for these years as well.

**In 2016, the sustainable harvest indicator did not exceed 1 only for fleet segments VL1824 TM and VL2440 TM.** This means that the remaining segments of the Polish fleet rely on catches of stocks exploited at a level higher than  $F_{msy}$ . 2016 was better in this respect for segments VL1824 TM, VL2440 TM, VL1218 DTS and VL1824 DTS compared with 2014-2015, while **the indicator deteriorated for fleet segment VL0010 PG (its value exceeded 1)**.

## 2. Stocks-at-risk indicator

The *stocks-at-risk indicator* is used to monitor situations where stocks at risk are exploited industrially. **The value of the indicator is 1 when catches of a stock at risk constitute more than 10 % of catches of the fleet segment concerned or if the fleet segment concerned takes more than 10 % of catches of that stock.** Otherwise, the stocks-at-risk indicator is 0.

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

$C_i$ : catch

$C_t$ : total catch of all stocks taken by the fleet segment concerned

$T_i$ : total catch of stock  $i$  taken by all segments

The stocks-at-risk category includes:

- stocks whose biomass has fallen below  $B_{lim}$ ,
- stocks for which the closure of fishing, prohibition of targeted fishing, restriction of catches to the lowest possible level, etc. have been recommended,
- stocks subject to rules requiring that the fish caught be returned to the sea unharmed or prohibiting landing,
- stocks which are on the 'red list' or the CITES list.

Among the stocks assessed, only the biomass of Western Baltic cod is below  $B_{lim}$ . The values of the *stocks-at-risk indicator* calculated for the analysed segments of the Polish fleet fishing in the Baltic Sea are presented in Table 2(a) to (c) below.

**Table 2(a) to (c). Stocks-at-risk indicator for the analysed segments of the Polish fleet**

**a) 2014**

Fleet segment	Catches of cod 22-24	Total catches [thousand]	Indicator
VL0010 PG	0.036	8.607	0
VL1012 PG	0.252	4.149	1
VL1218 DFN	0.127	3.053	1
VL1218 DTS	0.308	16.190	1
VL1824 DTS	0.113	13.192	1
VL1824 TM	0.002	13.345	0
VL2440 TM	0.010	59.906	0
<b>total catches</b>	<b>0.848</b>	<b>118.442</b>	

**b) 2015**

Fleet segment	Catches of cod 22-24	Total catches [thousand]	Indicator
VL0010 PG	0.030	8.810	0
VL1012 PG	0.208	3.858	1
VL1218 DFN	0.081	1.094	1
VL1218 DTS	0.321	18.371	1
VL1824 DTS	0.089	14.831	1
VL1824 TM	0.000	15.490	0
VL2440 TM	0.015	72.273	0
<b>total catches</b>	<b>0.745</b>	<b>134.725</b>	

**b) 2016**

Fleet segment	Catches of cod 22-24	Total catches [thousand]	Indicator
VL0010 PG	0.015	8.477	0
VL1012 PG	0.149	4.011	1
VL1218 DFN	0.066	1.462	0
VL1012 DTS	0.080	1.448	1
VL1218 DTS	0.266	17.710	1
VL1824 DTS	0.123	10.879	1
VL1824 TM	0.000	20.134	0
VL2440 TM	0.009	74.700	0
<b>total catches</b>	<b>0.707</b>	<b>138.819</b>	

**Western Baltic cod catches did not exceed 10 % of catches of the segment concerned in any of the fleet segments in 2014-2016.** Western cod catches are marginal, representing less than 1 % of the total catches of the Polish fleet. However, **as the second condition (the fleet segment concerned takes more than 10 % of catches of a stock at risk) was fulfilled, the *stocks-at-risk indicator* in 2016 is 1 for segments VL1012 PG, VL1012 DTS, VL1218 DTS and VL1824 DTS.** Compared with previous years, the value of the indicator changed from 1 to 0 only for fleet segment VL1218 DFN (Table 2(a) to (c)). The MIR-PIB does not have an analytical assessment of Eastern Baltic cod stocks. However, as the assessment of the size of the stock based on exploratory fisheries shows the lowest values to date in 2016, it is likely that this stock is also at risk.

## Technical indicators for 2014-2016

### 1. Vessel utilisation indicator

Calculations of the *vessel utilisation indicator* were based on the actual data on the Baltic fishing fleet's activity in 2014-2016 (ERS database). As in previous years, a fishing day was defined, in accordance with the Commission Decision of 18 December 2009 adopting a multiannual Community programme for the collection, management and use of data in the fisheries sector for the period 2011-2013 (notified under document number C(2009) 10121 (2010/93/EU)), as any continuous period of 24 hours (or part thereof) during which a vessel is present within an area and absent from port. Motor power (kW) and vessel capacity (GT) were determined on the basis of information from the given fishing day in the ERS database. Therefore, both these values take into account changes in vessel parameters over the year. Furthermore, in contrast to the methodology for calculating the *inactive fleet indicator* (which takes into account only vessels registered as at 1 January of the year concerned), the fleet capacity utilisation indicator was calculated taking into account all vessels active during the year (including those which came into operation after 1 January of the year concerned). In accordance with the DCF methodology, the actual maximum number of fishing days for the segment concerned was determined taking into account the number of days of the most active vessel from that segment. As in previous years, the theoretical number of fishing days was not calculated.

**Table 3. Statistics of the utilisation of individual fleet segments in 2014-2016**

Year	Segment	number, power and capacity of vessels			current effort			maximum theoretical effort (data from observation)				INDICATOR	
		number	kW	GT	days	kW days	GT days	days per vessel <sup>1</sup>	total days	kW days	GT days	kW days	GT days
2014	VL0010 PG	526	14 575	1 581	41 999	1 256 240	136 184	224	117 824	3 264 800	354 144	38 %	38 %
	VL1012 PG	107	7 003	1 174	9 198	629 080	107 869	213	22 791	1 491 639	250 062	42 %	43 %
	VL1218 DFN	28	3 253	784	2 950	354 363	83 943	219	6 132	712 407	171 696	50 %	49 %
	VL1218 DTS	73	9 707	2 140	8 816	1 160 211	265 267	198	14 454	1 921 986	423 720	60 %	63 %
	VL1824 DTS	35	7 622	1 989	4 079	884 560	234 851	171	5 985	1 303 362	340 119	68 %	69 %
	VL1824 TM	21	5 651	1 545	2 186	599 978	177 091	190	3 990	1 073 690	293 550	56 %	60 %
VL2440 TM	43	17 422	7 276	4 530	1 823 148	763 371	164	7 052	2 857 208	1 193 264	64 %	64 %	
<b>2014 total</b>		<b>833</b>	<b>65 233</b>	<b>16 489</b>	<b>73 758</b>	<b>6 707 579</b>	<b>1 768 577</b>	<b>214</b>	<b>178 228</b>	<b>12 625 092</b>	<b>3 026 555</b>	<b>53 %</b>	<b>58 %</b>
2015	VL0010 PG	516	14 338	1 548	40 926	1 241 954	129 311	219	113 004	3 140 022	339 012	40 %	38 %
	VL1012 PG	103	6 890	1 153	8 463	560 979	97 625	196	20 188	1 350 440	225 988	42 %	43 %
	VL1218 DFN	23	2 878	681	2 501	305 586	72 438	218	5 014	627 404	148 458	49 %	49 %
	VL1218 DTS	69	8 798	2 018	8 045	1 027 487	241 167	201	13 869	1 768 398	405 618	58 %	59 %
	VL1824 DTS	38	8 455	2 187	3 817	841 979	224 192	185	7 030	1 564 175	404 595	54 %	55 %
	VL1824 TM	20	5 125	1 351	2 369	605 477	167 721	201	4 020	1 030 125	271 551	59 %	62 %
VL2440 TM	41	16 590	6 965	5 044	2 055 704	872 816	187	7 667	3 102 330	1 302 455	66 %	67 %	
<b>2015 total</b>		<b>810</b>	<b>63 073</b>	<b>15 903</b>	<b>71 165</b>	<b>6 639 166</b>	<b>1 805 270</b>	<b>211</b>	<b>170 792</b>	<b>12 582 894</b>	<b>3 097 677</b>	<b>53 %</b>	<b>58 %</b>
2016	VL0010 PG	511	14 177	1 522	43 074	1 278 851	132 518	226	115 486	3 204 002	343 972	40 %	39 %
	VL1012 PG	108	7 062	1 183	9 155	613 696	104 441	179	19 332	1 264 098	211 757	49 %	49 %
	VL1012 DTS	13	1 287	198	1 012	101 314	15 898	113	1 469	145 431	22 374	70 %	71 %
	VL1218 DFN	27	3 502	862	2 778	334 039	88 665	190	5 130	665 380	163 780	50 %	54 %
	VL1218 DTS	55	7 053	1 691	6 273	822 228	195 758	194	10 670	1 368 282	328 054	60 %	60 %
	VL1824 DTS	27	6 033	1 572	2 682	584 274	159 352	174	4 698	1 049 742	273 528	56 %	58 %
	VL1824 TM	27	6 691	1 706	2 981	735 203	202 711	225	6 075	1 505 475	383 850	49 %	53 %
VL2440 TM	44	17 631	7 341	5 563	2 244 042	946 586	195	8 580	3 438 045	1 431 495	65 %	66 %	
<b>2016 total</b>		<b>812</b>	<b>63 437</b>	<b>16 074</b>	<b>73 518</b>	<b>6 713 647</b>	<b>1 845 929</b>	<b>211</b>	<b>171 440</b>	<b>12 640 455</b>	<b>3 158 810</b>	<b>53 %</b>	<b>58 %</b>

Note: as vessels were combined between segments (for a number of vessels lower than 10) and all vessels active during the year were included in the calculations, the data on the number, power and capacity of vessels may differ from the data provided in Table 2.

<sup>1</sup> the number of days at sea of the most active vessel in the segment concerned.

The results show a significant under-utilisation of the fleet's fishing capacity. In all fleet segments, the indicator calculated for both kW days and GT days for all years is below the reference indicator (0.7). Most changes in the *vessel utilisation indicator* in individual segments of the fishing fleet in 2016 did not exceed several percent. The indicator deteriorated significantly in the group of cutters fishing for pelagic fish (VL1824 TM), in which the kW days and GT days indicators dropped by 10 and 9 percentage points respectively. The indicator deteriorated because some vessels (seven vessels) were shifted to this segment from segment VL1824 DTS. The data in Table 7 show that the

average number of fishing days of cutters from segment VL1824 DTS (174 days) is significantly lower than the number of days spent at sea by vessels of the same size specialised in fishing for pelagic fish (225 days).

As in previous years, the potential working time was used the least on fishing boats with a length of up to 12 m in 2016. This was due to several factors. Smaller vessels make much more limited use of the economies of scale, and therefore of the marginal costs of production, than large vessels. Furthermore, these vessels fish in restricted fishing zones of a highly diverse nature, which translates into seasonal fishing activity. For example, vessels located in harbours of the Vistula Lagoon have much shorter fishing seasons than vessels fishing in the open sea because the lagoon freezes. Some small vessels are not engaged in strictly commercial fishing activity but fish on a supplementary basis (e.g. as an additional activity or for their own use).

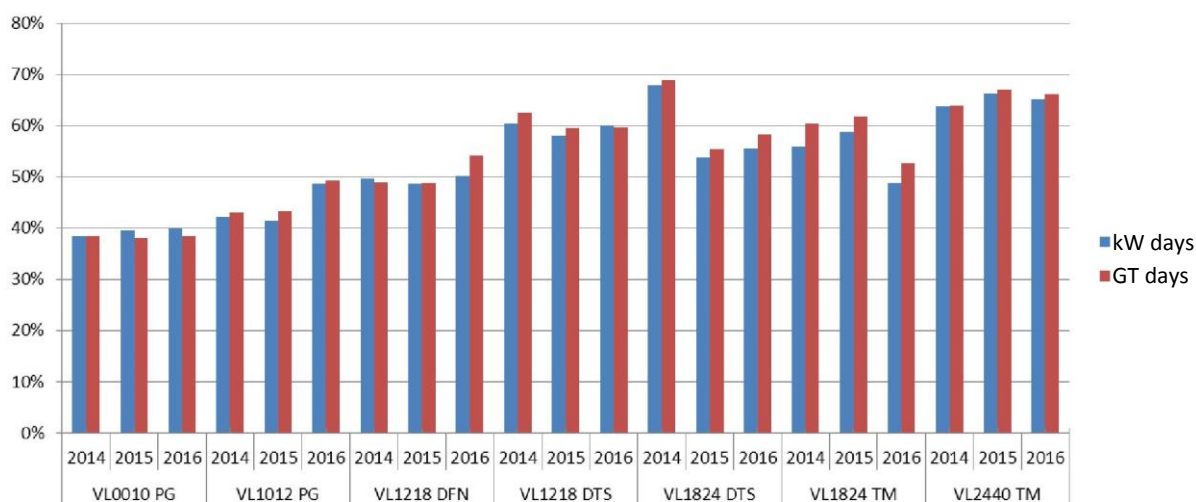
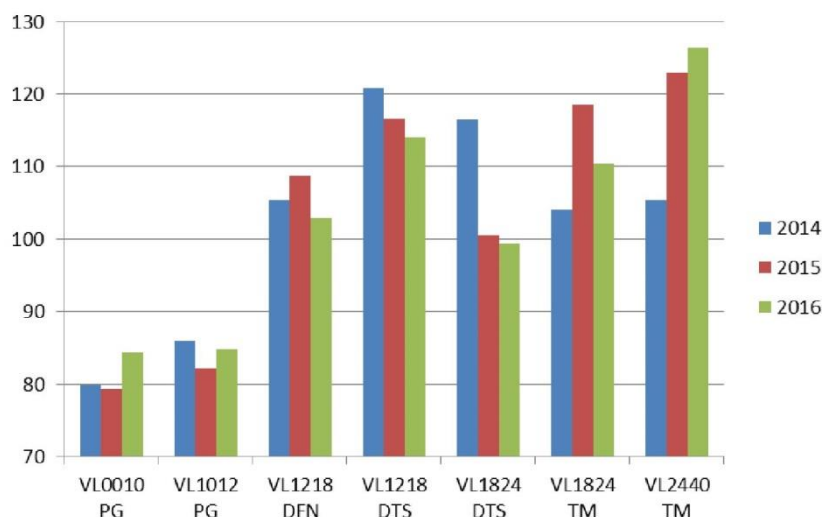


Figure 1. Utilisation of fleet capacity expressed in kW days and GT days in 2014-2016

It is worth taking into account changes in the average number of fishing days for individual segments when analysing changes in the fishing effort of the fishing fleet in 2014-2016. The deterioration of this indicator in the last three years is particularly noticeable for segments VL1218 DTS and VL1824 DTS. Both segments specialise in fishing for demersal fish and the decreasing number of fishing days every year should be linked to deteriorating cod stocks. For cutters with a length of 12 m to 18 m fishing with demersal trawl, the average number of fishing days in 2016 dropped by 6 % compared with 2014. For vessels with a length of 18 m to 24 m, that number decreased by as much as 15 %. The total number of fishing days for these two groups of vessels dropped by 29 % and 34 % respectively. Preliminary results for the first months of 2017 show a significant slump in the total cod catches, which could suggest that these indicators will deteriorate further for both segments.



**Figure 2. Average number of fishing days in 2014-2016**

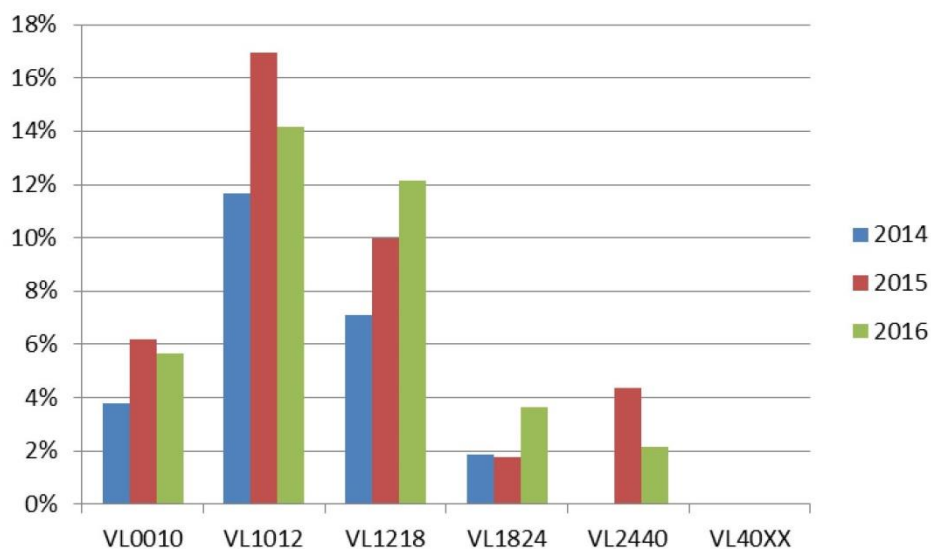
## 2. Inactive fleet indicator

The *inactive fleet indicator* was calculated for 2014-2016 based on data from the fishing vessel register, for vessels operating on the Baltic Sea, registered as at 1 January of each of the years analysed. In accordance with the guidelines, at least one fishing day reported by the shipowner during the year was taken as the fishing vessel activity indicator. The data analysed were broken down into vessel length (VL) classes, in accordance with the DCF methodology.

As in previous years, the share of inactive vessels in the Polish Baltic Sea fleet remained relatively low in 2016. Expressed as the ratio of the number of inactive vessels to the total number of vessels, that share decreased by 1 percentage point compared with 2015. The number of inactive vessels dropped in the group of boats with a length of 10 m to 12 m (by four vessels). The inactive vessel indicator remained at the highest level in that segment compared with the other vessel length groups (14 %). Vessels in this length category specialise in cod and flounder fishing (segment VL1012 PG and DTS): their share in the total catches in 2016 was 30 % and 45 % respectively, and 17 % in herring catches. The indicator and the number of inactive vessels with a length of 12 m to 18 m increased (by two vessels). In 2016, vessels from the two segments falling under this length class (DTS and DFN) caught mainly flounder (35 %), cod (21 %) and sandeel (21 %).

**Table 4. Statistics of fleet activity in 2014-2016**

Year	DCF length	active			inactive			inactive/total		
		number	GT	kW	number	GT	kW	number	GT	kW
2014	VL0010	483	1 497	14 024	19	54	344	4 %	3 %	2 %
	VL1012	106	1 123	6 981	14	117	832	12 %	9 %	11 %
	VL1218	105	2 951	13 012	8	136	799	7 %	4 %	6 %
	VL1824	52	3 072	12 008	1	37	121	2 %	1 %	1 %
	VL2440	46	7 180	17 935				0 %	0 %	0 %
	VL40XX	1	468	740				0 %	0 %	0 %
<b>2014 total</b>		<b>793</b>	<b>16 291</b>	<b>64 699</b>	<b>42</b>	<b>344</b>	<b>2 097</b>	<b>5 %</b>	<b>2 %</b>	<b>3 %</b>
2015	VL0010	500	1 469	13 719	33	84	619	6 %	5 %	4 %
	VL1012	103	1 109	6 902	21	158	1 112	17 %	12 %	14 %
	VL1218	99	2 752	11 843	11	243	1 314	10 %	8 %	10 %
	VL1824	55	3 161	12 516	1	51	227	2 %	2 %	2 %
	VL2440	44	6 885	17 149	2	403	805	4 %	6 %	4 %
	VL40XX	1	468	740				0 %	0 %	0 %
<b>2015 total</b>		<b>802</b>	<b>15 844</b>	<b>62 869</b>	<b>68</b>	<b>939</b>	<b>4 078</b>	<b>8 %</b>	<b>6 %</b>	<b>6 %</b>
2016	VL0010	501	1 458	13 689	30	79	512	6 %	5 %	4 %
	VL1012	103	1 055	6 430	17	129	861	14 %	11 %	12 %
	VL1218	94	2 703	11 519	13	266	1 410	12 %	9 %	11 %
	VL1824	53	3 071	12 167	2	180	455	4 %	6 %	4 %
	VL2440	45	7 113	17 569	1	259	385	2 %	4 %	2 %
	VL40XX	1	468	740				0 %	0 %	0 %
<b>2016 total</b>		<b>797</b>	<b>15 869</b>	<b>62 113</b>	<b>63</b>	<b>913</b>	<b>3 623</b>	<b>7 %</b>	<b>5 %</b>	<b>6 %</b>



**Figure 3. Relative share of inactive vessels in individual vessels length categories**

## Economic indicators for 2013-2015

### 1. Return on investment (ROI) vs next best alternative

The *return on investment indicator* is calculated to measure the efficiency of an economic activity, making it possible to evaluate the return on assets employed in that economic activity. It is calculated as the ratio between an undertaking's profit and the value of its fixed assets. **If the value of the indicator is greater than 0, it means that the assets are generating income.** In this situation, the interpretation of the indicator depends on the opportunity cost. **An ROI value lower than 0 indicates that the activity is making a loss. If this situation is permanent, the undertaking should invest the capital employed in the fixed assets elsewhere.** Differences in the value of the indicator for individual fishing vessel segments in the period analysed indicate which group of vessels (segment of vessels) is using the assets employed in the activity concerned most efficiently. However, the efficiency of a segment is also determined by rules governing the assignment of the vessel concerned to only one segment (while catches with a variety of gears during the year are a characteristic feature of Polish fishing). This rule is also the reason why segments are closed and opened (this was the case in 2016).

In accordance with the applicable methodology, data on direct subsidies were excluded from the calculations. Table 5 shows the *ROI* and the data used to calculate it.

**Table 5. Return on investment indicator for the segments of the Polish Baltic Sea fleet in 2015 (EUR thousand)**

item	Specification	PG VL0010	PG VL1012	DFN VL1218	DTS VL1218	DTS VL1824	TM VL1824	VL2440	Total/Average
1	<b>Total revenue, including</b>	<b>11 604</b>	<b>4 697</b>	<b>1 303</b>	<b>9 219</b>	<b>6 467</b>	<b>4 159</b>	<b>13 690</b>	<b>56 139</b>
	revenue from landings	6 762	3 247	1 162	8 949	6 191	3 987	18 424	48 723
	other revenue	74	229	133	202	103	97	22	859
	subsidies	4 769	1 221	7	68	173	75	245	6 558
2	<b>Total costs, including</b>	<b>7 670</b>	<b>4 204</b>	<b>1 358</b>	<b>6 305</b>	<b>4 325</b>	<b>2 113</b>	<b>14 772</b>	<b>40 753</b>
	remuneration	2 480	1 489	444	1 467	752	426	3 036	10 094
	outstanding remuneration	2 509	610	171	359	209	185	325	4 368
	energy consumption	599	528	198	2 074	1 151	666	3 814	9 031
	repairs and services	468	297	160	491	508	281	2 003	4 208
	other variable costs	975	550	208	608	488	188	1 185	4 202
	non-variable (fixed) costs	462	462	96	632	460	246	1 831	4 190
depreciation	178	267	81	674	756	125	2 578	4 659	
3	<b>Profit/loss (revenue without subsidies – total costs)</b>	<b>-835</b>	<b>-728</b>	<b>-62</b>	<b>2 846</b>	<b>1 969</b>	<b>1 966</b>	<b>3 673</b>	<b>3 329</b>
4	<b>Fixed assets (value)</b>	<b>16 775</b>	<b>11 420</b>	<b>4 710</b>	<b>13 978</b>	<b>12 001</b>	<b>7 322</b>	<b>28 155</b>	<b>94 361</b>
5	<b>ROI (profit/fixed assets)</b>	<b>-4.93 %</b>	<b>-6.38 %</b>	<b>-1.32 %</b>	<b>20.36 %</b>	<b>16.41 %</b>	<b>26.35 %</b>	<b>13.05 %</b>	<b>9.36 %</b>

#### Explanation of concepts:

**Revenue from landings:** determined on the basis of data from first sale documents. If such documents were not available, as in the case of the sales value of vessels smaller than 8 m and when some data for vessels larger than 8 m were incomplete, the value of fish sales was calculated on the basis of the average annual prices of individual fish species caught by vessels that did provide first sale documents, and data on the volume of catches by the entire fleet.

**Other revenue:** additional revenue from accompanying activities, e.g. tourist and occasional activities.

**Subsidies:** primarily public aid granted to fishing vessel owners under the OP FISH 2007-2013, i.e. mainly compensation for the temporary suspension of catches and subsidies for vessel modernisation.

**Remuneration:** gross remuneration costs together with overheads and the estimated value of unpaid labour (e.g. owners and their families).

**Energy consumption:** covers the fuel and lubricants used by boats.

**Repairs and services:** concern the servicing of vessels and equipment and are usually carried out as external services (e.g. accounting services). The costs include expenditure incurred by shipowners to purchase materials and services for ongoing repairs and maintenance of vessels. The data were obtained from statistics questionnaire RRW-19.

**Other variable costs:** expenditure on fishing gear, ice, fish boxes, protective clothing, other materials, food for the crew, and port and landing fees.



**Non-variable costs:** costs not depending on catches, associated with fees, property insurance, security, external services, with the exception of renovation, financial costs and other costs, etc.

**Depreciation:** the annual value of depreciation declared by undertakings in forms RRW-19, calculated on the basis of books of accounts.

**Cost of capital:** the depreciation and opportunity cost of the capital invested was calculated on the basis of interest on 10-year government bonds minus inflation.

**Fixed assets value:** determined for each fishing vessel individually on the basis of the compensation rate which the shipowner can obtain if a vessel is decommissioned with public aid.

**Profit or loss:** calculated on the basis of the above data as the difference between the revenue from landings together with other revenue and total costs. Subsidies are not included.

**ROI:** an indicator representing the ratio of profit or loss to the fixed assets value.

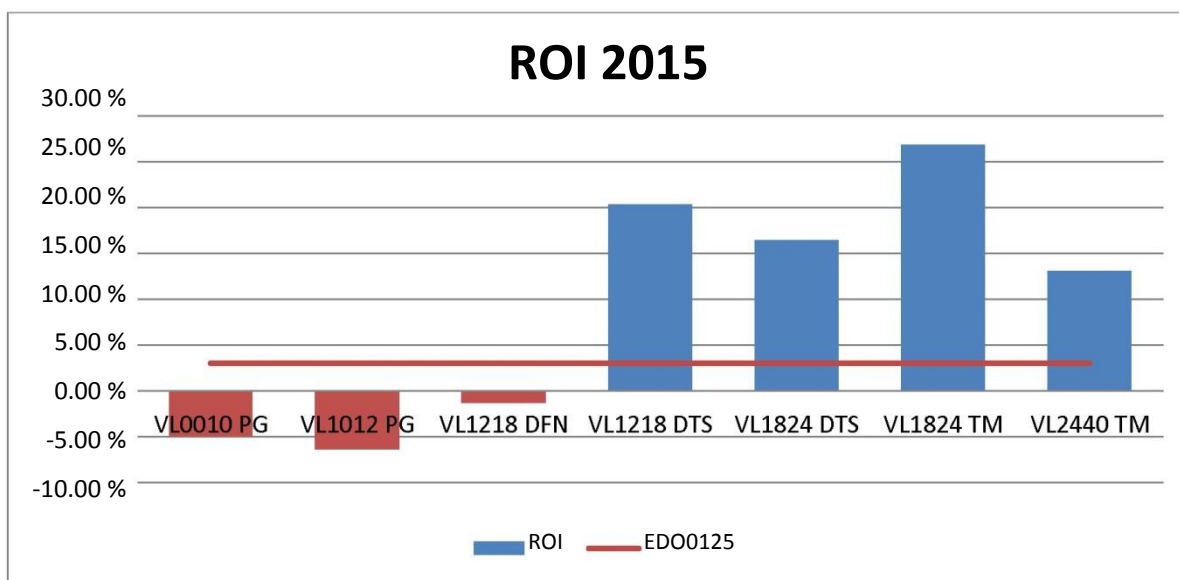


Figure 4. Return on investment indicator for the segments of the Polish Baltic Sea fleet in 2015 (EUR thousand)

### Interpretation of ROI results

The *return on investment* without state subsidies increased in 2015 (9.36 % on average compared with 4.49 % in 2014 and 5.76 % in 2013). This means a growth in the sector above the safe investment alternative in the form of 10-year EDO0125<sup>4</sup> bonds with an interest rate of 3 % in 2015. This was due primarily to a lower cost dynamics (by 7 % compared with 2014). The DFN segment, which has been generating high losses in recent years, also improved the economic results. The improvement in 2015 was mainly due to a decrease in energy (fuel) costs by nearly 20 % and a similar decrease in fixed (non-variable) costs. While energy consumption decreased to a similar extent in all segments, fixed costs dropped mainly in the segments of boats longer than 12 m. Revenue from landings decreased in the segments of smaller boats, i.e. VL0010 PG and VL1012 PG, by nearly 15 % and 2 % compared with 2014. In the other segments, revenue increased from 2 % to 13 %. The increases were mainly due to an increased volume of catches (in nearly all segments) and stable prices.

<sup>4</sup> <http://www.obligacjeskarbowe.pl/oferta-obligacji/obligacje-10-letnie-edo/edo0125/>

The rate of return on investment varied from fishing segment to fishing segment. As in previous years, segment VL1824 TM (pelagic fishing boats with a length of 18-24 m) was the most effective segment in 2015. The ROI reached nearly 27 %, the highest result in the last three years (14 % in 2014 and 23 % in 2013). The return achieved was nearly nine times the safe interest rate in the year analysed.

Traditionally effective DTS segments (demersal trawlers) had an equally positive ROI (above EDO0125). Returns in those segments were higher than in the previous year. In 2015, the ROI for segment VL1218 DTS was 20.36 %, a significant increase compared with the previous year (8.02 %) and 2013 (6.65 %). Also the ROI for segment VL1824 DTS increased to 16.41 % compared with 10.84 % in 2014 and 12.09 % in 2013. Positive returns on investments could be observed in the segments of demersal trawlers analysed. It should be borne in mind that both segments of vessels using demersal trawl comprise vessels which catch highly diverse species, as demonstrated by the species structure of their landings, with an increasing share of pelagic fish. The improvement in these segments' results could be due to good prices and catch per unit effort for herring and sprat. A decreasing catch per unit effort for cod and a poor individual condition of these fish, translating into poor prices, could suggest that the economic results deteriorated for those vessels from segments VL1218 DTS and VL1824 DTS which, of necessity, rely mainly on cod fishing.

Positive financial results could be observed in the segment of the largest trawlers, i.e. VL2440 TM. That segment saw a return on assets employed of 13.05 %, which represented a twofold increase compared with the previous year (6.43 %) and a slight increase compared with 2013 (11.11 %).

The last group of segments were segments generating losses. Three segments of the smallest boats fishing with passive gear, i.e. VL0010 PG, VL1012 PG and VL1218 DFN (cutters fishing with nets), generated losses in 2015. In 2015, the investment unprofitability of the DFN segment (cod) was lower than in the previous year and amounted to -1.32 %. The segment continued to generate losses even though revenue increased by 2 % and costs were reduced by nearly 19 % compared with the previous year. Importantly, it should be stressed that the level of unprofitability was decidedly lower than in the previous year (-1.32 % compared with -7.7 %).

A higher unprofitability than in the DFN segment could be observed in two segments of the smallest boats of up to 10 m, i.e. VL0010 PG (vessels fishing with nets and other passive gear) and VL1012 PG. This was due to a decrease in revenue from landings by 1 % in segment VL1012 PG and by 14 % in segment VL0010 PG. The decrease was accompanied by a disproportionate decrease in costs by 6 % in segment VL0010 PG alone, while a 14 % increase in total costs could be observed in segment VL1012 PG. The main cost items were remuneration and other variable costs for segment VL1012 PG, and repairs and services and non-variable costs for segment VL0010 PG. Changes in the revenue and cost parameters contributed to a deficit of -4.98 % for segment VL0010 PG and -6.38 % for segment VL1012 PG respectively. The results deteriorated in both segments compared with 2014 and 2013.

For ROI calculations taking into account public subsidies, positive economic results could be observed in nearly all segments, except for the DFN segment, for which the indicator was -1.16 %. In all the remaining segments, rates of return were higher than safe long-term investments in government bonds. The average rate of return on investment for fishing activities, taking into account state subsidies, was 16.31 % in 2015, which represents an increase of nearly 42 % compared with 2014 (11.43 %) and a decrease compared with 2013 (18.11 %).

Figure 5 shows the long-term evolution of the ROI.

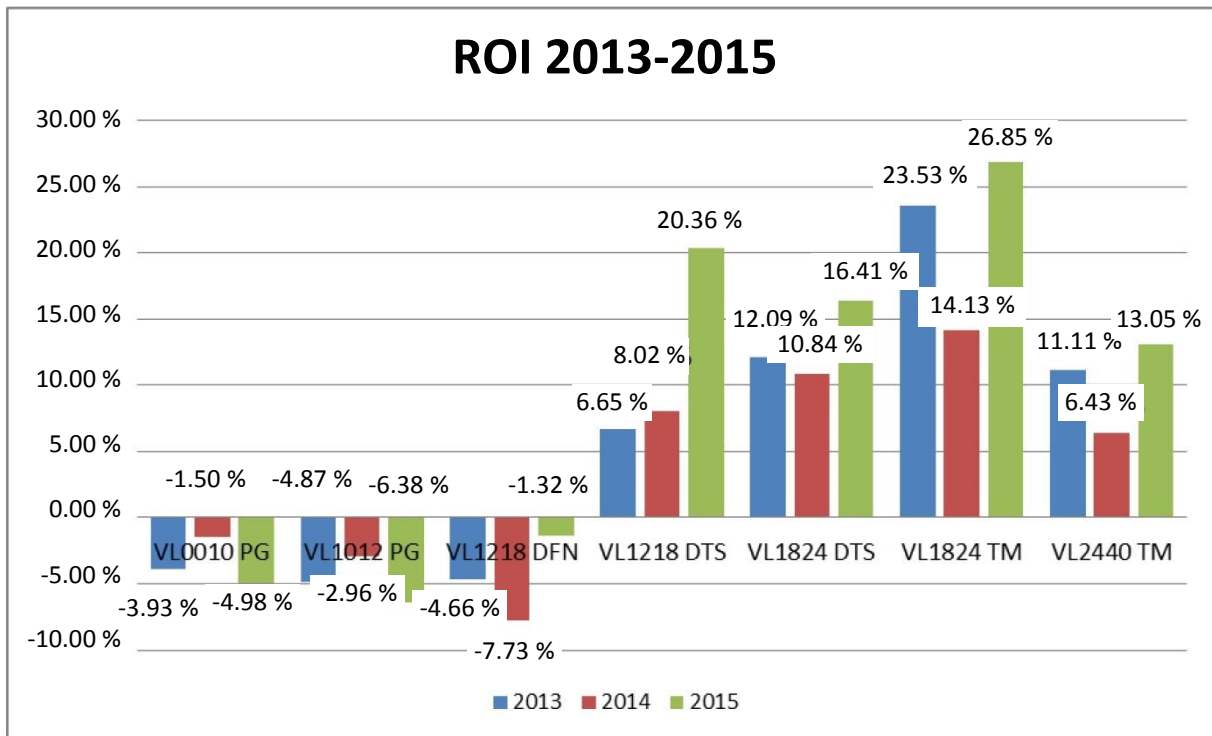


Figure 5. Long-term evolution of the ROI in 2013-2015

## 2. Ratio between current revenue and break-even revenue (CR/BER)

The *CR/BER indicator* refers to the break-even point, which is achieved when the revenue covers both the fixed and variable costs of a segment. *BER* is the revenue required to cover total costs, and *CR* is the current revenue of a vessel or segment. The *CR/BER ratio* shows the short-term profitability of a fishing vessel. **If the ratio is greater than 1, coverage by revenue is equal to or greater than fixed and variable costs, which means that a profit can be generated from an activity. If the ratio is lower than 1, revenue from the fleet's/segment's activities is not sufficient to cover costs.** A negative value of the ratio indicates that the basic activity is deeply unprofitable, which makes it impossible to cover fixed costs (variable costs are higher than the segment's revenue). The ratio should be correlated with ROI calculations.

Table 6 shows the calculations of the *CR/BER ratio* for individual segments of the fleet of vessels operating in 2015.

**Table 6. CR/BER calculations in 2014 (EUR thousand)**

item	Specification	PG VL0010	PG VL1012	DFN VL1218	DTS VL1218	DTS VL1824	TM VL1824	TM VL2440	Total
1	<b>Total income (CR), including:</b>	<b>11 604</b>	<b>4 697</b>	<b>1 303</b>	<b>9 219</b>	<b>6 467</b>	<b>4 159</b>	<b>18 690</b>	<b>56 139</b>
	income from landings	6 762	3 247	1 162	8 949	6 191	3 987	18 424	48 723
	other revenue	74	229	133	202	103	97	22	859
	subsidies	4 769	1 221	7	68	173	75	245	6 558
2	<b>Variable costs, including:</b>	<b>7 031</b>	<b>3 475</b>	<b>1 181</b>	<b>4 999</b>	<b>3 108</b>	<b>1 746</b>	<b>10 364</b>	<b>31 904</b>
	remuneration (including outstanding remuneration)	4 989	2 099	614	1 826	962	612	3 361	14 463
	energy consumption	599	528	198	2 074	1 151	666	3 814	9 031
	repairs and services	468	297	160	491	508	281	2 003	4 208
	other variable costs	975	550	208	608	488	188	1 185	4 202
3	<b>Fixed costs, including:</b>	<b>639</b>	<b>730</b>	<b>177</b>	<b>1 306</b>	<b>1 216</b>	<b>371</b>	<b>4 408</b>	<b>8 848</b>
	non-variable costs	462	462	96	632	460	246	1 831	4 190
	depreciation	178	267	81	674	756	125	2 578	4 659
	opportunity cost (not included)*	503	343	141	419	360	220	845	2 831
4	<b>Break-even revenue (BER)</b>	<b>-22 300</b>	<b>1 674 235</b>	<b>1 997</b>	<b>2 879</b>	<b>2 403</b>	<b>649</b>	<b>10 062</b>	<b>24 818</b>
5	<b>CR/BER</b>	<b>-0.31</b>	<b>0.00</b>	<b>0.65</b>	<b>3.18</b>	<b>2.62</b>	<b>6.29</b>	<b>1.83</b>	<b>2.00</b>

**Explanation of concepts:**

**Fixed costs:** costs not depending on the volume of catches, related to the operation of fishing enterprises.

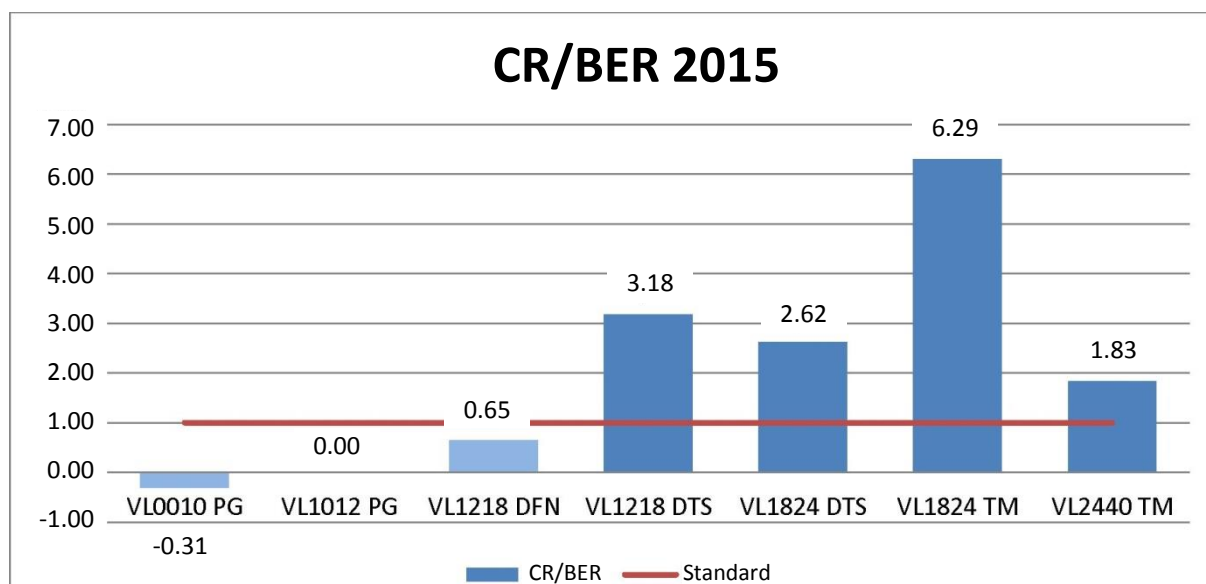
**Variable costs:** costs determined by the volume of catches (results) or by the operator's fishing effort.

**Other fixed costs:** costs not directly related to the volume of fishing vessels' catches (including port fees, external services, insurance, financial costs and other costs).

**Opportunity costs:** should be taken into account only for long-term comparisons. It represents an alternative use of capital in risk-free securities.

**CR:** total current revenue.

**BER (break-even revenue):** revenue making it possible to cover total costs (fixed and variable) and obtain normal profit (0).



**Figure 6. Value of the CR/BER ratio for individual segments of the fishing fleet in 2015 (public subsidies are not included in the calculations)**

**Interpretation of CR/BER results**

The CR/BER parameter is analysed to assess the profitability of the segment concerned and the ratio between revenues and costs. Determining the break-even point makes possible a comparison with the revenue generated. Segments for which costs are covered at the level of at least 100 % (i.e.

the value of the indicator is at least 1) get a good rating.

A long-term decline in *BER* indicates that the relationship between these key economic parameters (revenue/variable costs/fixed costs) has improved and the potential for profits in the segment concerned has increased. In 2015, revenue from the first sale of fish increased by 1 % on average compared with the previous year, which translated into a reduction in costs. While fixed costs increased by 2 %, variable costs fell by 10 %, mainly due to a decrease in fuel costs. In 2015, *BER* decreased by 23 % on average compared with the previous year, which is a highly positive development. Nevertheless, the situation varied from segment to segment. A significant increase in other fishing revenue, mainly from services for tourists and anglers, should also be noted. Although this is still just a small portion of the revenue (2 % of the value of landings), very high increases could be observed in nearly all segments in 2015.

The revenue and cost structure improved and the coverage threshold decreased in five of the segments analysed. The first such segment was VL1218 DFN, in which coverage at the level of 0.65 was achieved due to a negative *CR/BER* result (variable costs were not covered in the previous year in that segment). The situation improved in the following segments: VL1218 DTS (*BER* decreased by 34 %), VL1824 DTS (*BER* decreased by 14 %), VL1824 TM (a reduction by as much as 51 %) and VL2440 TM (a 19 % decrease). The positive decline in those segments was caused by a reduction in variable costs (by 13 % on average). For segment VL1824 TM, fixed costs were also reduced by 40 % compared with the previous year.

The revenue/costs ratio deteriorated in two segments in the period analysed. The first of these segments was VL0010 PG, in which efficiency deteriorated to the point where variable costs were no longer covered in 2015. The second segment was VL1012 PG, in which the gross margin was close to zero. The data presented show that the economic conditions and economic efficiency in these two segments were deteriorating.

To summarise the *CR/BER* analyses, the results presented vary: some segments achieved positive financial results which continue to improve, while others made losses and a downward trend can be observed.

The first group consists of profitable segments in which the *CR/BER* ratio was greater than 1. These are the following four segments: VL1218 DTS, VL1824 DTS, VL1824 TM and VL2440 TM. The ratio was the highest (the most advantageous) in segment VL1824 TM, which was the most profitable segment in 2014 (6.29). This segment benefited from good price conditions for herring and favourable prices for sprat. Its revenue significantly exceeded the break-even point. The segment of demersal trawlers with a length of 12-18 m (ratio of 3.18) and demersal trawlers with a length of 18-24 m (2.62) came in second in terms of efficiency. It should be noted that the high *CR/BER* ratio in these two groups of vessels was due to the same factor which improved the profitability of segment VL1824 TM, i.e. the high profitability of pelagic fish catches. The increasing involvement in herring and sprat fishing could result in vessels from these two segments shifting to the pelagic segment, which would translate into worse results in that segment (with limited fishing quotas). In 2016, the number of vessels from segment VL1824 TM increased from 20 to 27 vessels (+35 %), while the number of vessels from segment VL1824 DTS decreased by nine vessels (-29 %). The number of vessels from segment VL1218 DTS decreased by 7 % (four vessels, three of which shifted to segment VL1218 DFN). It is likely that only less efficient vessels will remain in the two groups of segments of vessels fishing with demersal trawl as a result of the changes in these groups, thus rendering the groups less profitable.

Segment VL1012 PG shifted into a deficit position, with the *CR/BER* ratio of 0.00. The second

group comprised segment VL0010 PG. The negative *BER* result is indicative of a poor revenue and cost structure in this segment. This was due to a decline in revenue and a high increase in repair and maintenance costs.

Figure 7 shows the long-term evolution of the *CR/BER* ratio.

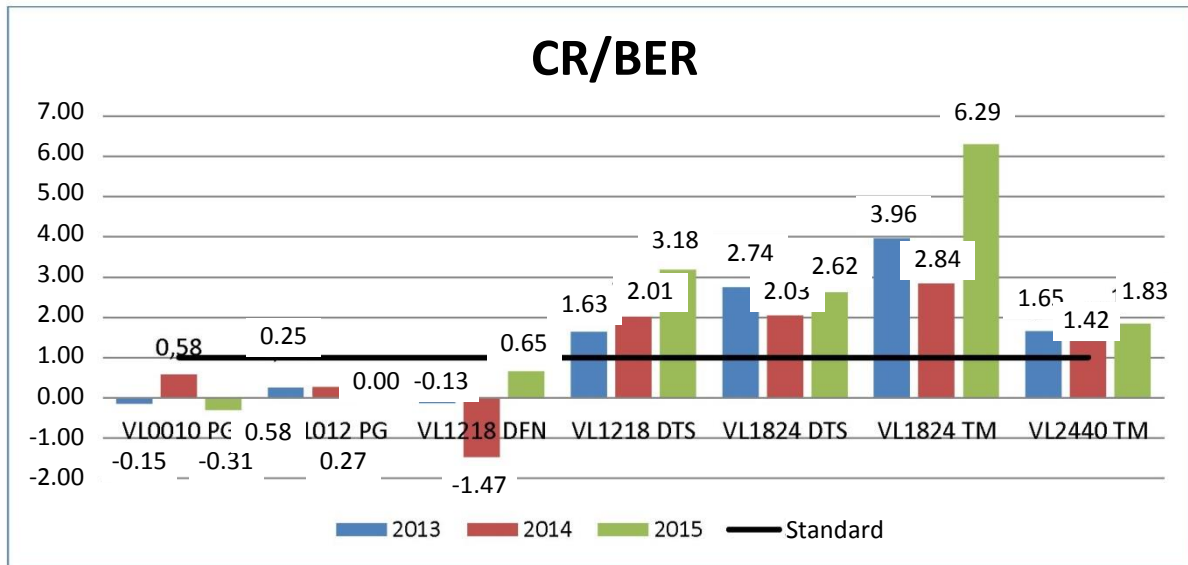


Figure 7. Value of the *CR/BER* ratio for individual segments of the fishing fleet in 2013-2015

## IX. Analysis and evaluation of the balance between fishing capacity and fishing opportunities for each segment of the fishing fleet over three consecutive years

Table 7. Indicators achieved by individual segments of the Polish fishing fleet over three consecutive years (for 2013-2015 or 2014-2016 accordingly)

Segment	Number of vessels	Sustainable harvest indicator	Stocks-at-risk indicator	CR/BER (ratio between current revenue (CR) and break-even revenue (BER))	ROI (return on investment (ROI) vs next best alternative)	Vessel utilisation indicator	
						kW days	GT days
VL0010 PG	511 in 2016	1.06 in 2016	0 in 2016	-0.31 in 2015	-4.98 % in 2015	40 % in 2016	39 % in 2016
	516 in 2015	0.98 in 2015	0 in 2015	0.58 in 2014	-1.50 % in 2014	40 % in 2015	38 % in 2015
	526 in 2014	0.88 in 2014	0 in 2014	-0.1 in 2013	-3.93 % in 2013	38 % in 2014	38 % in 2014
VL1012 PG	108 in 2016	1.49 in 2016	1 in 2016	0.00 in 2015	-6.38 % in 2015	49 % in 2016	49 % in 2016
	103 in 2015	1.47 in 2015	1 in 2015	0.27 in 2014	-2.96 % in 2014	42 % in 2015	43 % in 2015
	107 in 2014	1.43 in 2014	1 in 2014	0.25 in 2013	-4.87 % in 2013	42 % in 2014	43 % in 2014
VL1012 DTS	13 in 2016	1.71 in 2016	1 in 2016	no data	no data	70 % in 2016	71 % in 2016
VL1218 DFN	27 in 2016	1.54 in 2016	0 in 2016	0.65 in 2015	-1.32 % in 2015	50 % in 2016	54 % in 2016
	23 in 2015	1.69 in 2015	1 in 2015	-1.47 in 2014	-7.73 % in 2014	49 % in 2015	49 % in 2015
	28 in 2014	1.54 in 2014	1 in 2014	-0.13 in 2013	-4.66 % in 2013	50 % in 2014	49 % in 2014
VL1218 DTS	55 in 2016	1.26 in 2016	1 in 2016	3.18 in 2015	20.36 % in 2015	60 % in 2016	60 % in 2016
	69 in 2015	1.40 in 2015	1 in 2015	2.01 in 2014	8.02 % in 2014	58 % in 2015	59 % in 2015
	73 in 2014	1.45 in 2014	1 in 2014	1.63 in 2013	6.65 % in 2013	60 % in 2014	63 % in 2014
VL1824 DTS	27 in 2016	1.08 in 2016	1 in 2016	2.62 in 2015	16.41 % in 2015	56 % in 2016	58 % in 2016
	38 in 2015	1.24 in 2015	1 in 2015	2.03 in 2014	10.84 % in 2014	54 % in 2015	55 % in 2015
	35 in 2014	1.28 in 2014	1 in 2014	2.74 in 2013	12.09 % in 2013	68 % in 2014	69 % in 2014
VL1824 TM	27 in 2016	0.91 in 2016	0 in 2016	6.29 in 2015	26.85 % in 2015	49 % in 2016	53 % in 2016
	20 in 2015	1.11 in 2015	0 in 2015	2.84 in 2014	14.13 % in 2014	59 % in 2015	62 % in 2015
	21 in 2014	1.25 in 2014	0 in 2014	3.96 in 2013	23.53 % in 2013	56 % in 2014	60 % in 2014
VL2440 TM	44 in 2016	0.89 in 2016	0 in 2016	1.83 in 2015	13.05 % in 2015	65 % in 2016	66 % in 2016
	41 in 2015	1.07 in 2015	0 in 2015	1.42 in 2014	6.43 % in 2014	66 % in 2015	67 % in 2015
	43 in 2014	1.14 in 2014	0 in 2014	1.65 in 2013	11.11 % in 2013	64 % in 2014	64 % in 2014

### 1. Results of fishing vessel segment VL0010 PG (vessels with an overall length of up to 10 m, fishing with nets and other passive gear):

- ❖ biological indicators (2016):
  - ✓ the sustainable harvest indicator was 1.06,
  - ✓ the stocks-at-risk indicator was 0;
- ❖ technical indicators (2016):
  - ✓ the vessel utilisation indicator was 40 % of kW days and 39 % of GT days,
  - ✓ the inactive fleet indicator was 6 % of the total number of fishing vessels in the fleet segment in question, which means that 5 % GT and 4 % kW of vessels in that segment were not used;
- ❖ economic indicators (2015):
  - ✓ ROI was -4.98 %,
  - ✓ CR/BER was -0.31.

The above indicators show that the *sustainable harvest indicator* increased annually but stayed within the allowable range in 2016 (0.88 in 2014, 0.98 in 2015 and 1.06 in 2016). Despite this trend, this fleet segment did not induce a fishing mortality higher than the target mortality (the *stocks-at-risk indicator* in 2014, 2015 and 2016 was 0). It should be concluded that the fishing capacity of segment VL0010 PG was balanced with the available fishing opportunities until 2015, but reached the limit in 2016.

This fleet segment is characterised by a low number of inactive vessels, although an upward trend could be observed in 2016.

The continued low utilisation of the capacity of fishing vessels is characteristic of the segment, with the vessel utilisation indicator amounting to 38 % of kW days and 38 % of GT days in 2014, 40 % of kW days and 38 % of GT days in 2015 and 40 % and 39 % respectively in 2016.

The continued unprofitability of the segment is a reason for concern (the *ROI* was **-4.98 %** in 2015), as is the speed of deterioration (the *ROI* was **-1.5 %** in 2014 and **-3.93 %** in 2013). Such results could indicate that fishing activities and catches are permanently unprofitable. While the scale of unprofitability is marginal, the economy of segment VL0010 PG is evaluated negatively due to the lack of a clear trend towards improvement.

Even though segment VL0010 PG has a marginal impact on resources, **fishing capacity is not balanced with the available fishing opportunities due to deteriorating sustainability of resources and negative economic results.**

## 2. Results of fishing vessel segment VL1012 PG (vessels with an overall length of 10 m to 12 m, fishing with nets and other passive gear):

- ❖ biological indicators (2016):
  - ✓ the sustainable harvest indicator was **1.49**,
  - ✓ the stocks-at-risk indicator was **1**;
- ❖ technical indicators (2016):
  - ✓ the vessel utilisation indicator was 49 % of kW days and 49 % of GT days,
  - ✓ the inactive fleet indicator was 14 % of the total number of fishing vessels, which means that 11 % GT and 10 % kW of vessels in that vessel length category were not used;
- ❖ economic indicators (2015):
  - ✓ *ROI* was **-6.38 %**,
  - ✓ *CR/BER* was **0.0**.

Bearing in mind the above indicators, the fleet segment's reliance on overfished stocks (the *sustainable harvest indicator* was higher than 1 in 2014-2016), the fact that the *stocks-at-risk indicator* remained at 1 in 2014-2016, a clear downward trend in the *ROI* (-6.38 % in 2015, -2.96 % in 2014 and -4.87 % in 2013) and a continuing decrease in the *CR/BER ratio* compared with previous years (0.27 in 2014 and 0.25 in 2013), which was below 1 (0.0) in 2015, the economic results achieved by this fleet segment in 2013-2015 were unfavourable and, at the same time, the segment had a negative impact on the state of resources.

The segment analysed was characterised by the highest ratio of inactive vessels in the entire Polish fishing fleet in 2016. The *inactive fleet indicator* dropped to 14 % in 2016 compared with 2015 (when it amounted to 17 % of the total number of fishing vessels in the above fleet segment, which meant that 12 % GT and 14 % kW of boats of the length concerned were not used; in 2014, the indicator amounted to 12 %, which meant that 9 % GT and 11 % kW were not used).

To summarise the results, **a clear lack of balance with the available fishing opportunities, and a negative economic balance can be observed in segment VL1012 PG.**

## 3. Results of fishing vessel segment VL1012 DTS (vessels with a length of 10 m to 12 m, fishing with demersal trawl):

- ❖ biological indicators (2016):
  - ✓ the sustainable harvest indicator was **1.71**,



- ✓ the stocks-at-risk indicator was 1;
- ❖ technical indicators (2016):
  - ✓ the vessel utilisation indicator was 70 % of kW days and 71 % of GT days,
  - ✓ the inactive fleet indicator was 14 % of the total number of fishing vessels, which means that 11 % GT and 10 % kW of vessels in that vessel length category were not used.

The segment was distinguished in 2016 and comprises 13 boats fishing with demersal trawl. **A clearly adverse impact on the state of resources could be observed in the segment** (the *sustainable harvest indicator* was 1.71, which is the worst result ever achieved).

The highest *vessel utilisation indicators* out of the entire fleet in this segment are a positive development. As there are no economic results, the degree of sustainability cannot be determined. **However, an adverse impact on the state of resources can be clearly identified.**

#### 4. Results of fishing vessel segment VL1218 DFN (vessels with an overall length of 12 m to 18 m, fishing with nets):

- ❖ biological indicators (2016):
  - ✓ the sustainable harvest indicator was 1.54,
  - ✓ the stocks-at-risk indicator was 0;
- ❖ technical indicators (2016):
  - ✓ the vessel utilisation indicator was 50 % of kW days and 54 % of GT days,
  - ✓ the inactive fleet indicator was 12 % of the total number of fishing vessels of the length in question, which means that 9 % GT and 11 % kW of vessels in that vessel length category were not used;
- ❖ economic indicators (2015):
  - ✓ ROI was -1.32 %,
  - ✓ CR/BER was 0.65.

The segment analysed continued to rely on overfished stocks (the *sustainable harvest indicator* was higher than 1 in 2014-2016). The *stocks-at-risk indicator*, which stood at 1 in 2014-2015, improved, amounting to 0 in 2016. The downward trend in the *ROI*, which characterised this segment in previous years, also changed (-1.32 % in 2015, -7.73 % in 2014 and -4.66 % in 2013). The *CR/BER ratio* also increased (0.65 % in 2015, -1.47 in 2014 and -0.13 in 2013), which translated into a better revenue/costs ratio. The *CR/BER ratio* was higher than zero for the first time, which means that the vessels operating in this segment cover their variable costs.

Therefore, as in the case of segment VL1012 PG, the unfavourable economic and biological results of segment VL1218 DFN in 2013-2016 point to a lack of balance between the segment's fishing capacity and the available fishing opportunities.

To summarise, **a clear lack of balance with the available fishing opportunities can be observed in segment VL1218 DFN, as evidenced by both the biological and economic indicators achieved by this segment.**

#### 5. Results of fishing vessel segment VL1218 DTS (demersal trawlers with an overall length of 12 m to 18 m):

- ❖ biological indicators (2016):
  - ✓ the sustainable harvest indicator was 1.26,
  - ✓ the stocks-at-risk indicator was 1;

- ❖ technical indicators (2016):
  - ✓ the vessel utilisation indicator was 60 % of kW days and 60 % of GT days,
  - ✓ the inactive fleet indicator was 12 % of the total number of fishing vessels of the length in question, which means that 9 % GT and 11 % kW of vessels in that vessel length category were not used;
- ❖ economic indicators (2015):
  - ✓ ROI was 20.36 %,
  - ✓ CR/BER was 3.18.

A downward trend in the *sustainable harvest indicators* is also worth mentioning. In 2016, this indicator approached 1, amounting to 1.26. However, the fleet segment in question still relies on overfished stocks which are exploited at a level higher than  $F_{msy}$  (the *sustainable harvest indicator* exceeded 1 in 2014-2016). At the same time, the *stocks-at-risk indicator* for segment VL1218 DTS stood at 1 in 2014-2016. However, this was due to the fulfilment of the second condition.

The fleet segment's economic results should be positively assessed. The *ROI* systematically increased in subsequent years (20.36 % in 2015, 8.02 % in 2014 and 6.65 % in 2013). The *CR/BER indicator* points to a positive relationship between revenues and costs, which is a measure of the segment's economic strength. The segment revenue exceeded the cost coverage point nearly three times over in 2015.

It must, therefore, be concluded that **the fishing capacity of segment VL1218 DTS is not balanced with the available fishing opportunities (with an upward trend), but the fleet segment's financial results reflect its good economic situation.** In recent years, the segment has shifted away from fishing for demersal fish (mainly cod) to fishing for pelagic fish, the catches of which may contribute to overall favourable results of the entire group of vessels due to good fishing results and prices. Vessels relying mainly on cod fishing could achieve much worse economic results within the segment.

## 6. Results of segment VL1824 DTS (demersal trawlers with an overall length of 18 m to 24 m):

- ❖ biological indicators (2016):
  - ✓ the sustainable harvest indicator was 1.08,
  - ✓ the stocks-at-risk indicator was 1;
- ❖ technical indicators (2016):
  - ✓ the vessel utilisation indicator was 56 % of kW days and 58 % of GT days,
  - ✓ the inactive fleet indicator was 4 % of the total number of fishing vessels of the length in question, which means that 6 % GT and 4 % kW of vessels in that vessel length category were not used;
- ❖ economic indicators (2015):
  - ✓ ROI was 16.41 %,
  - ✓ CR/BER was 2.62.

As with segment VL1218 DTS, the *stocks-at-risk indicator* for segment VL1824 DTS stood at 1 in the period analysed due to the fulfilment of the *second condition*. The fleet segment in question also relies on overfished stocks which are exploited at a level higher than  $F_{msy}$  (the *sustainable harvest indicator* exceeded 1 in 2014-2016). However, in 2016 this indicator fell by 0.16 to a level close to the limit.

The segment was characterised by good economic results in the period analysed. The fact that

the *ROI* showed some fluctuations in subsequent years (16.41 % in 2015, 10.84 % in 2014 and 12.09 % in 2013) and remained at a relatively high level compared with the other segments of the Polish fishing fleet reflects the sector's operational efficiency.

To summarise, **there is only a slight imbalance between the fishing capacity of segment VL1824 DTS and the available fishing opportunities** and the fleet segment's financial results reflect its relatively good economic situation. Like segment VL1218 DTS, in recent years segment VL1824 DTS has shifted away from fishing for demersal fish (mainly cod) to fishing for pelagic fish, the catches of which may contribute to overall favourable results of the entire group of vessels due to good fishing results and prices. Vessels relying mainly on cod fishing could achieve much worse economic results within the segment.

#### **7. The situation in segment VL1824 TM (pelagic trawlers with an overall length of 18 m to 24 m):**

- ❖ biological indicators (2016):
  - ✓ the sustainable harvest indicator was 0.91,
  - ✓ the stocks-at-risk indicator was 0;
- ❖ technical indicators (2016):
  - ✓ the vessel utilisation indicator was 49 % of kW days and 53 % of GT days,
  - ✓ the inactive fleet indicator was 4 % of the total number of fishing vessels of the length in question, which means that 6 % GT and 4 % kW of vessels in that vessel length category were not used;
- ❖ economic indicators (2015):
  - ✓ ROI was 26.85 %,
  - ✓ CR/BER was 6.29.

Notably, the *sustainable harvest indicator* dropped below 1. Thus, it can be concluded that the segment no longer relies on overfished stocks which are exploited at a level higher than  $F_{msy}$  (the *sustainable harvest indicator* exceeded 1 in 2015 and 2014, and dropped to 0.91 in 2016). The *stocks-at-risk indicator* was also at a safe level in 2014-2016, amounting to 0.

The record-breaking economic performance of the fishing fleet in segment VL1824 TM is notable. That segment's *ROI* was 26.85 % in 2015, which represents a significant increase compared with 2014 (14.13 %) and is similar to that achieved in 2013 (23.53 %). The segment in question also boasted the highest *CR/BER ratio* in the entire fleet. Revenue was over six times the equilibrium point (6.29).

The small number of fishing vessels in the segment in question (27 vessels in 2016, 20 vessels in 2015 and 21 vessels in 2014) may indicate that it has a relatively safe impact on resources. It should, therefore, be concluded that the fishing capacity of segment VL1824 TM is balanced with the available fishing opportunities.

#### **8. The situation in segment VL2440 TM (pelagic trawlers with an overall length of 24 m to 40 m):**

- ❖ biological indicators (2016):
  - ✓ the sustainable harvest indicator was 0.89,
  - ✓ the stocks-at-risk indicator was 0;
- ❖ technical indicators (2016):
  - ✓ the vessel utilisation indicator was 65 % of kW days and 66 % of GT days,

- ✓ the inactive fleet indicator was 2 % of the total number of fishing vessels, which means that 4 % GT and 2 % kW of vessels in that fleet segment were not used;
- ❖ economic indicators (2015):
  - ✓ ROI was 13.05 %,
  - ✓ CR/BER was 1.83.

As in the previous segment, the *sustainable harvest indicator* reached an acceptable level (0.89) in the period analysed in 2016 for the first time. Unlike in 2014-2015, the fleet segment in question no longer relied on overfished stocks, which were exploited at a level higher than  $F_{msy}$  in the period analysed.

The *stocks-at-risk indicator* was also at a safe level in 2014-2016, amounting to 0 in all the years analysed.

The sector achieves positive but unstable economic indicators. The *ROI* in 2013, 2014 and 2015 stood at 11.11 %, 6.43 % and 13.05 % respectively. This, in turn, is indicative of positive mechanisms and high investment attractiveness compared with safe alternatives. In turn, the *CR/BER ratio* was higher than 1 in 2013-2015, which points to a good revenue and cost structure (1.83 in 2015, 1.42 in 2014 and 1.65 in 2013).

Also the small number of fishing vessels in the segment in question (44 vessels in 2016, 41 vessels in 2015 and 43 vessels in 2014) may indicate that it has a relatively safe impact on resources. It should, therefore, be concluded that the fishing capacity of segment VL2440 TM is balanced with the available fishing opportunities.

### Analysis of catches of fish species in segments

Pelagic fish predominated in the Polish Baltic Sea fleet's catches in 2016, with a 75 % share in the total landings. In previous years, pelagic fish constituted from 72.6 % to 77.9 % of the volume of catches. Herring catches increased significantly in the period analysed, with their share in the volume of catches reaching 31.5 % (compared with 28.1 % in 2015 and 23.7 % in 2014). The share of sprat catches, which constituted 43.5 % of the volume of catches in 2016, decreased (from 47.2 % in 2015). Among the species covered by the multiannual management plan, cod catches, in which all the fleet segments were engaged, were monitored particularly closely. The share of the catches of this species by the Polish fleet in the Baltic Sea catches dropped to 7.5 % in 2016 (compared with 10.1 % in 2015), while the share of flounder catches increased to 10.5 % (compared with 6.9 % in 2015).

Comparisons in individual segments are difficult because their structure changed in 2016 and a new segment (VL1012 DTS) appeared, comprising vessels which were combined between segments until then (VL1012 PG). Fig. 1 shows the distribution of catches in terms of the major fish species for 2013-2016.

As in previous years, vessels using demersal trawl, broken down into segments with the length of 12-18 m (VL1218 DTS) and 18-24 m (VL1824 DTS), vessels with the length of 12-18 m using nets (VL1218 DFN), as well as vessels with the length of 10-12 m using passive gear (VL1012 PG), were engaged in targeted fishing for cod. In these segments cod catches constituted 18 %, 20 %, 61 % and 34 % of the volume of catches respectively. Compared with previous years, there was a noticeable decrease in the share of cod in landings in most segments. In 2015, cod catches constituted 84 % of the volume of catches in segment VL1218 DFN. The share of cod catches in the total catches decreased significantly from 27 % to 18 % in segment VL1824 DTS and to a slightly smaller extent (from 24 % to 20 %) in segment VL1218 DTS. Both these groups of vessels became more reliant on flounder and herring catches at the time. For vessels from segment VL1218 DTS, the

share of flounder catches increased from 30 % to 36 %, while the share of herring catches rose from 7 % to 10 %. For segment VL1824 DTS, the share of flounder catches increased from 9 % to 17 %, and the share of herring catches rose from 15 % to 17 %. In 2016, the total catches declined in both these segments compared with the previous year by 4 % and 17 %. The fishing effort (the number of days at sea) of both groups of vessels also declined noticeably by 9 % and 29 % respectively. Both indicators suggest that the situation in the two segments could deteriorate in the future as they shift away from cod catches to catches of other species.

Sprat and herring were traditionally caught by the largest vessels (VL1824 TM and VL2440 TM), for which they constituted 90 % and 95 % of the volume of catches respectively in 2016. In previous years, cod were also caught by vessels with a length of 18-24 m (mainly as by-catch), whereas catches of other species were of marginal importance for large vessels.

Catches of salmon, another species for which there are limits, are also of marginal significance, even though the number of fish caught increased in subsequent years analysed. Vessels from segment VL1218 DFN are to a certain extent specialised in fishing for this species, but these volumes do not make up a significant portion of the fishing revenue in this segment.

The share of flounder catches in the fishing revenue of the Baltic Sea fisheries, especially in fishing with static gear and demersal trawl, is increasing. Flounder is the main species caught by vessels from segment VL1012 DTS (51.6 % of the volume of catches). Segment VL1012 PG was another segment with a significant share of flounder catches, which constituted 43.5 % of the volume of catches in 2016 in that segment.

## X. Action plan

In connection with the results of biological, technical and economic indicators relating to the Polish Baltic Sea fleet presented in Chapter VIII, Section F *Estimation and discussion of balance indicators* and Chapter IX *Analysis and evaluation of the balance between fishing capacity and fishing opportunities for each segment of the fishing fleet over three consecutive years*, it should be concluded that some segments of the Polish Baltic Sea fleet are not effectively balanced with the available fishing opportunities. Therefore, an action plan has been drawn up pursuant to Article 22(4) of Regulation (EU) No 1380/2013.

In order to ensure a balance between the fleet's fishing capacity and the available fishing opportunities (resources), bearing in mind the need to ensure that fishing is carried out in a sustainable and effective manner, appropriate steps must be taken to achieve this balance.

This goal will be achieved through the following measures:

1) **permanent cessation of fishing activities** referred to in Article 34 of Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund and repealing Council Regulations (EC) No 2328/2003, (EC) No 861/2006, (EC) No 1198/2006 and (EC) No 791/2007 and Regulation (EU) No 1255/2011 of the European Parliament and of the Council or

2) **temporary cessation of fishing activities** referred to in Article 33 of Regulation (EU) No 508/2014,

which will be financed under the **Operational Programme 'Fisheries and the Sea' (OP FISH 2014-2020)**, co-financed from the budget of the European Maritime and Fisheries Fund.

It should be noted that the measures financed under the OP FISH 2014-2020 linked to the fleet segments recognised as balanced in this report, are not included in the *Plan*.

### 1. Permanent cessation of fishing activities

Aid for permanent cessation of fishing activities will cover Polish fishing vessels from the following segments:

- **VL0010 PG**: vessels with an overall length of up to 10 m, fishing with nets and other passive gear,
- **VL1012 PG**: vessels with an overall length of 10 m to 12 m, fishing with nets and other passive gear,
- **VL1012 DTS**: demersal trawlers with an overall length of 10 m to 12 m,
- **VL1218 DFN**: vessels with an overall length of 12 m to 18 m, fishing with nets.

As indicated in Chapter IX of this report, fishing capacity is not balanced with the available fishing opportunities in segment **VL0010 PG** due to deteriorating sustainability of resources and a prevailing trend towards negative economic results. The *sustainable harvest indicator* continued to increase over three consecutive years, exceeding 1 in 2016. Also notable is the lowest average vessel utilisation level out of the entire fleet in that segment (the *vessel utilisation indicator*). A clear lack of balance with the available fishing opportunities, and a negative economic balance can be observed in segment **VL1012 PG**. This is confirmed by a prevailing trend towards negative biological and economic indicators over three consecutive years. Also notable is the highest *inactive fleet indicator* out of the entire fleet. Segment **VL1012 DTS** (distinguished in 2016 alone) has a clearly adverse impact on the state of resources. A clear lack of balance with the available fishing opportunities can be observed in segment **VL1218 DFN**, as evidenced by the unfavourable biological and economic

indicators achieved by that segment.

In accordance with Regulation No 508/2014, aid for permanent cessation of fishing activities will concern:

- Polish fishing vessels which have carried out fishing activities at sea for at least 90 days per year during the last two calendar years preceding the date of submission of the application for support; or
- fishermen who have worked at sea for at least 90 days per year during the last two calendar years preceding the date of submission of the application for support, on board of a fishing vessel concerned by the permanent cessation.

The permanent cessation of fishing activities will be achieved through the scrapping of fishing vessels. Aid will be paid after the fishing vessel concerned is permanently removed from the Polish fishing vessel register (forming part of the Union fishing fleet register) and after the fishing licence and authorisation of that vessel are permanently withdrawn. Once scrapped, a vessel cannot be re-entered in the register. Aid is also planned for permanent cessation of fishing activities of wooden fishing vessels, which will not be scrapped if they retain a land-based heritage function.

Permanent cessation of fishing activities will be financed under the OP FISH 2014-2020 and the aid will be granted until 31 December 2017.

## 2. Temporary cessation of fishing activities

Aid for temporary cessation of fishing activities will cover Polish fishing vessels from the following segments:

- **VL1218 DTS**: demersal trawlers with an overall length of 12 m to 18 m or
- **VL1824 DTS**: demersal trawlers with an overall length of 18 m to 24 m,

which in the last three years were allocated, by means of special fishing permits, the right to fish for at least two species subject to fishing quotas, including the Baltic cod.

As noted in Chapter IX of the report, the fishing capacity of segment **VL1218 DTS** is not balanced with the available fishing opportunities (with an upward trend), as confirmed by unfavourable values of the *sustainable harvest indicator* and *stocks-at-risk indicator* over three consecutive years. A similar situation can be observed in segment **VL1824 DTS**, although the *sustainable harvest indicator* dropped to a level close to the limit (1.08) in 2016. Ultimately, it was concluded that there was only a slight imbalance between the fishing capacity of segment VL1824 DTS and the available fishing opportunities. At the same time, it should be noted that besides the negative values of biological indicators for 2014-2016, the above fleet segments did well in financial terms, which is a sign of their relatively good economic condition. It would, therefore, be appropriate to apply temporary measures that would not permanently exclude the above fleet segments from fishing activities.

In addition, it is expected that after the aid for permanent cessation of fishing activities is granted, i.e. after 31 December 2017, aid for temporary cessation of fishing activities will also cover fishing vessels from segments VL0010 PG, VL1012 PG, VL1012 DTS and VL1218 DFN which did not receive the aid for permanent cessation of fishing activities.

In accordance with Regulation No 508/2014, aid for temporary cessation of fishing activities will concern:

- Polish fishing vessels which have carried out fishing activities in the Baltic Sea for at least 120 days during the last two calendar years preceding the date of submission of the application

for support;

or

- fishermen who have worked at sea for at least 120 days during the last two calendar years preceding the date of submission of the application for support on board of a fishing vessel concerned by the temporary cessation.

Support will be granted for a maximum duration of six months per fishing vessel in 2014-2020. All fishing activities carried out by the fishing vessel or by the fishermen concerned will be effectively suspended if support is granted for the given period.

Furthermore, imbalanced fleet segments are to be covered by financial support in respect of the [protection and restoration of marine biodiversity and ecosystems and compensation regimes in the framework of sustainable fishing activities](#) referred to in Article 40(1) of Regulation (EU) No 508/2014 of the European Parliament and of the Council. The aim will be to provide those segments with alternative forms of activities.

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