

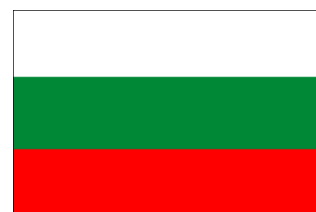
**Republic of Bulgaria  
Executive Agency for Fisheries and Aquacultures**



**Bulgarian Annual Report on the efforts in 2021 to achieve a  
sustainable balance between fishing capacity and fishing  
opportunities**

*In accordance with Article 22 of the Regulation (EU) 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 of the Council and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC  
and following the 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 (COM/2014/545)*

**Burgas, May 2022**



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## ***Summary of the report***

During the period 2007 – 2022, the Bulgarian fishing fleet has decreased in number of vessels, as well as GT and kW in all segments, with exception for 12-18 m, where a minor increase takes place. The fleet development is shown on **Table 9** and **Figures 5** and **6**. Each entry (or increase the tonnage or the engine power) in the fishing fleet register has been covered by the withdrawal of at least same quantity from the fleet.

The economic condition of the fleet was significantly affected by the COVID-19 pandemic, which continued during 2021. Anti-epidemiological measures taken, such as the restriction or complete closure of commercial and restaurant networks and the decreasing of the consumption, have led to a significant reduction in demand for fish and fishery products. On the other hand, the closure of cross-border borders and the restrictions imposed on their crossing have led to a drastic drop in exports. The sector has been significantly affected, leading to staff reductions and pay cuts.

Other factors influencing the fleet are: the relatively high average age of fishing vessels, which is about 24 years; imbalance between variable costs and current revenues; low purchasing power of the population; the annual migrations of some of the species of economic importance; lack of a market regulator guaranteeing equal levels of purchase prices to set maximum and minimum values, lack of a sufficient number of fish auctions and first-sale centers near ports.

The inactivity of fishing vessels is mainly due to COVID-19 crisis and the subsequent shortage of markets, also to repairs activities, upgrades or upcoming sales and transfers of ownership and, to a lesser extent, the supply of new fishing gear. Inactive fishing vessels in 2021 conditionally divided by total length are as follows: LOA 0006 - 260 pcs.; LOA 0612 – 363 pcs.; LOA 1218 – 12 pcs.; LOA 1824 – 3 pc; LOA over 24 m – nil.

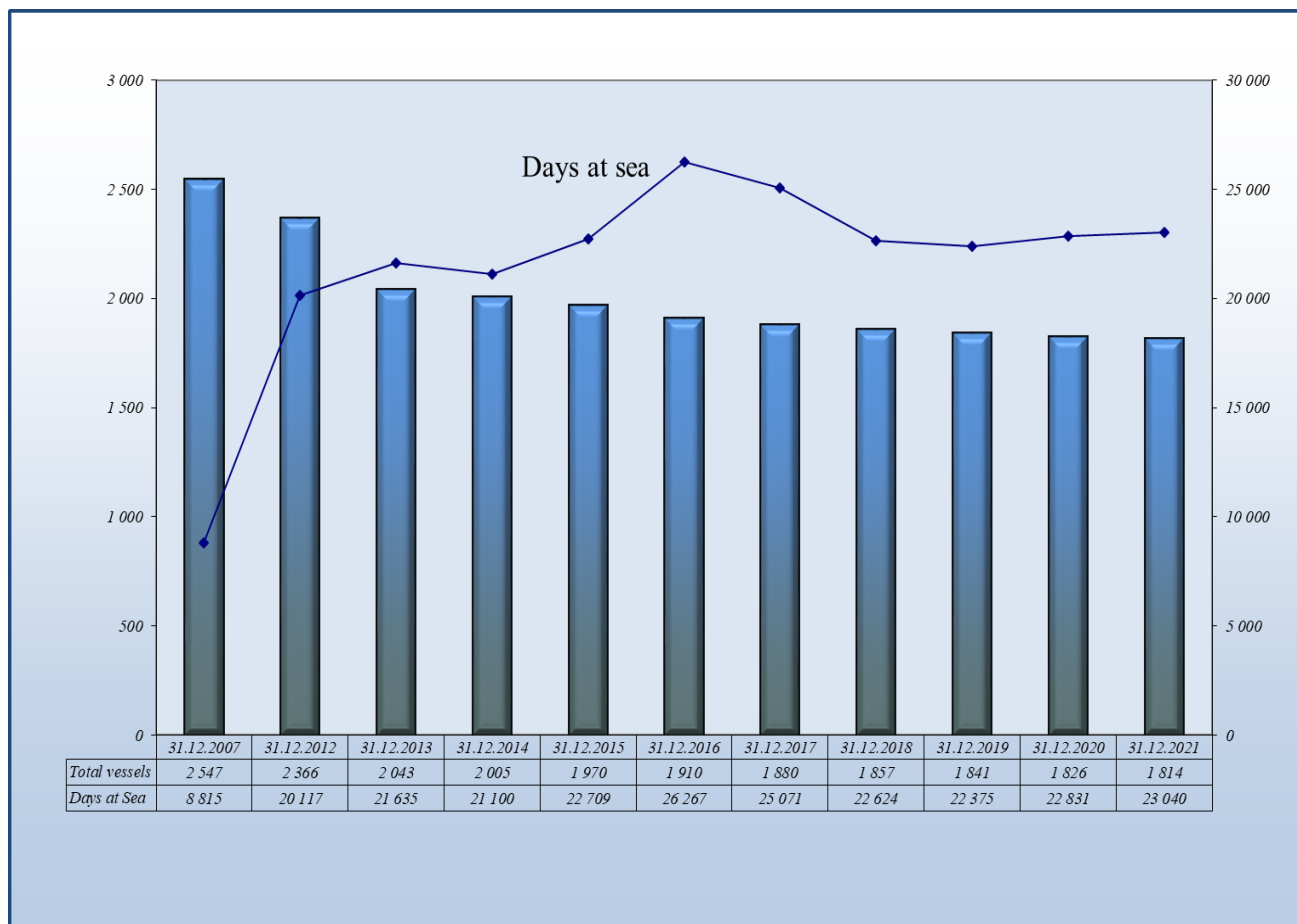
With regard to inactive vessels, a step-by-step withdrawal continues in the past year, in accordance with the measures described in national legislation (Article 18c of the LFA Act).

## **SECTION A**

### **A.1. Description of the Bulgarian fishing fleet**

Bulgaria has a coastline of 378 km, a continental shelf of 10,886 km<sup>2</sup> and an Exclusive Economic Zone in the Black Sea of about 25,699 km<sup>2</sup>. Most of fishing activities are carried out within the territorial waters (up to 12 nautical miles area). At 31 December, 2021, the Bulgarian fishing fleet consists of 1,814 vessels, operating only in Black Sea, with total capacity of GT 5,985 and 52,902 kW. The fishing vessels assigned to small-scale fishing with LOA of up to 12 meters, represent 95% or 1,720 vessels. The most of them are using as a preferred gear gillnets (anchored). The average age of the Bulgarian fishing fleet is 24 years. As it is shown in **Table 9** and **Figure 1**(presented below), the number of registered vessels is reduced by 28% from the date of accession of Bulgaria to the EU (01 January 2007). There is a slight decrease in active vessels compared to 2020, while at sea days there is a slight increase compared to the 2020 reference values. (**Figure 1**).





**Figure 1.** Number of the vessels and days at sea for the period 2007-2021

The active fishing vessels in 2021 are 1,182 and the vast majority of them, a total of 1,103, are within the scope of a small-scale (mainly coastal) fishing. The percentage of active fishing vessels is 93 % for vessels up to 12 m and at 7% for vessels of over 12 m. The fishing activity of the fleet in 2021, expressed in days at sea, is a total of 23,040 days, as 63 % belong to the fishing vessels with a total length of up to 12 meters. These segment activity data are approximately the same as for the previous 2020.

**Table 1:** Fishing activity of the vessels during 2021.

LOA	Number of vessels	GT	kW	Days at sea	Vessels' ratio	Days at sea ratio
LOA 0012	1,103	1,798	23,209.4	14,561	93%	63%
LOA 1240	79	2,901	15,064.4	8,479	7%	37%
<b>Total</b>	<b>1,182</b>	<b>4,699</b>	<b>38,273.8</b>	<b>23,040</b>		

*"Days at sea", Decision 2010/93/EU.*



Segmentation of vessels, doing commercial fishing, by fishing gear in the Black Sea waters, shall be carried out in accordance with Decision 2010/93 / EU. The groups of similar fishing activities and fishing gear, typical for each group, are listed in **Table 2**.

**Table 2:** Groups similar fishing activities and gear

Fishing Technique	DFN - Drift and/or fixed nets		TM - Pelagic trawlers		HOK-using hooks			FPO- pots and/or traps		PS- Purse seiners		PGP- passive gears	PMP	
	GNS Gillnets (set)	GND Gillnets (drift)	TBB beam trawlers	OTM pelagic trawlers	LLD Longlines drifting	LLS Longlines (set)	LHP Hand lines	FPO Pots	FPN stat. pound trap nets	PS Purse seine	SB Beach seine	Only passive gears	No prevailing gear	NO-no gear

**Table 3:** Days at sea by segments for 2017, 2018, 2019, 2020 and 2021.

2017			2018			2019			2020			2021		
Segment	LOA	Days at Sea	Segment	LOA	Days at Sea	Segment	LOA	Days at Sea	Segment	LOA	Days at Sea	Segment	LOA	Days at Sea
DFN	VL0006	2102	DFN	VL0006	2351	DFN	VL0006	2239	DFN	VL0006	2650	DFN	VL0006	2621
	VL0612	3574		VL0612	3491		VL0612	3116		VL0612	4551		VL0612	5064
	VL1218	353		VL1218	200		VL1218	420		VL1218	1543		VL1218	1254
	VL1824	280	Total:		6042		VL2440	72		VL1824	458		VL1824	322
Total:		6309	PS	VL0006	202	Total:		5847		VL2440	98		VL2440	75
PS	VL0006	154		VL0612	31	PS	VL0006	127	Total:		9300		Total:	9336
	VL0612	28	Total:		233		VL0612	35	PS	VL0006	74	FPO	VL0612	525
	VL1218	77	FPO	VL0006	2		VL1218	64		VL0612	47		Total:	525
Total:		259		VL0612	533	Total:		226	Total:		121	HOK	VL0006	43
FPO	VL0006	14	Total:		535	FPO	VL0006	28	FPO	VL0006	28		VL0612	66
	VL0612	533	HOK	VL0006	42		VL0612	499		VL0612	690		Total:	109
Total:		547		VL0612	139	Total:		527	Total:		718	PGP	VL0006	62
HOK	VL0006	293	Total:		181	HOK	VL0006	85	HOK	VL0006	80		VL0612	72
	VL0612	785	PGP	VL0006	68		VL0612	249		VL0612	123		VL1218	108
	VL1218	28		VL0612	150	Total:		334		VL1218	102		Total:	242
Total:		1106		VL1218	34	PGP	VL0006	28	Total:		305	PMP	VL0006	1398
PGP	VL0006	80	Total:		252		VL0612	68	PGP	VL0006	30		VL0612	4290
	VL0612	158	PMP	VL0006	2427	Total:		96		VL0612	38		VL1218	1343
Total:		238		VL0612	4710	PMP	VL0006	2021		VL1218	88		VL1824	55
PMP	VL0006	2584		VL1218	1517		VL0612	4503	Total:		156		Total:	7086
	VL0612	6868		VL1824	534		VL1218	2408	PMP	VL0006	1383	PS	VL0006	84
	VL1218	1978		VL2440	99		VL1824	1203		VL0612	4409		VL0612	24
	VL1824	360	Total:		9287	Total:		10135		VL1218	1484		Total:	108
Total:		11790	TBB	VL0612	177	TBB	VL0612	179		VL1824	392	TBB	VL0612	64
TBB	VL0612	182		VL1218	464		VL1218	652	Total:		7668		VL1218	151
	VL1218	396		VL1824	199		VL1824	150	TBB	VL1218	98		VL1824	113
	VL1824	27	Total:		840	Total:		981	Total:		98		Total:	328
Total:		605	TM	VL0612	79	TM	VL0612	105	TM	VL0612	201	TM	VL0612	248
TM	VL0612	102		VL1218	2378		VL1218	1783		VL1218	1768		VL1218	2123
	VL1218	1597		VL1824	1084		VL1824	631		VL1824	901		VL1824	1109
	VL1824	900		VL2440	1713		VL2440	1710		VL2440	1595		VL2440	1826
	VL2440	1618	Total:		5254	Total:		4229	Total:		4465	Total:		5306
Total:		4217	Total:		22624	Total:		22375	Total:		22831	Total:		23040
Total:		25071												

**Table 3** shows the fishing activity data for fishing vessels for 2017, 2018, 2019, 2020 and 2021, showing that the data from the reference 2020 is increased by 1 %. The largest drop was observed in HOK and



FPO segments by 64% and 27 % respectively, while in few other segments there is an increase of the activity, respectively in TBB - 235% and PGP - 55%.

**Table 4:** Activity of the fishing vessels by segments for 2021.

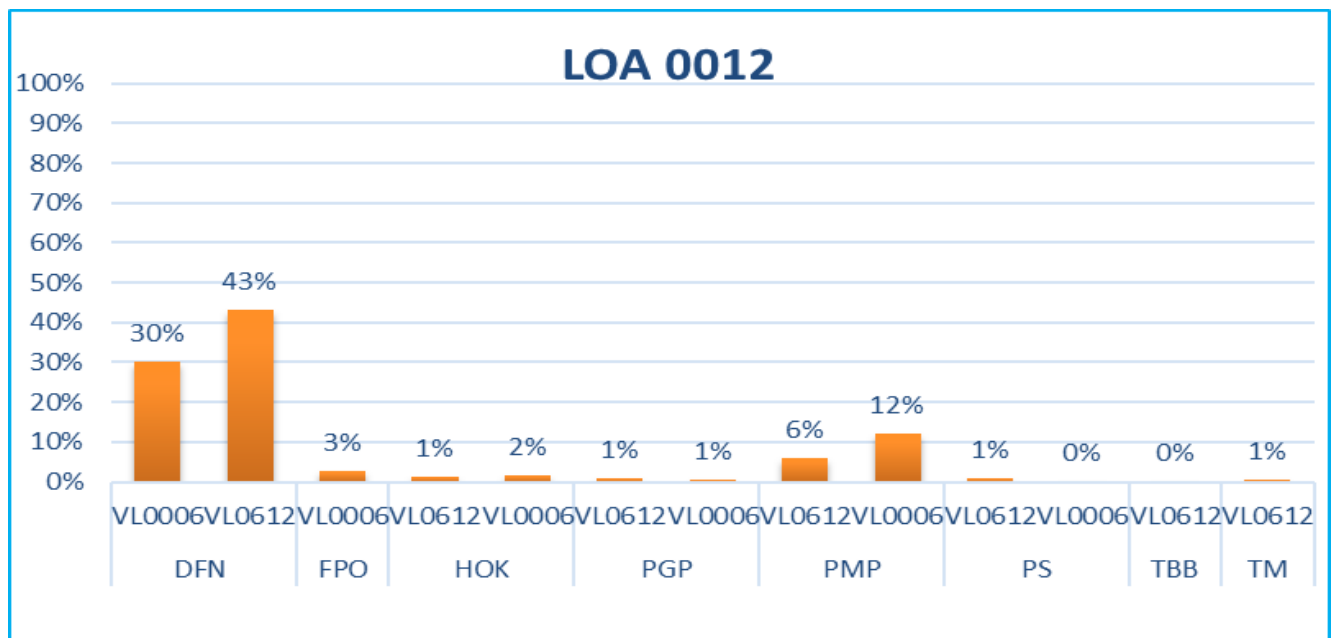
Segment Code	Segment	Number of vessels	GT	kW	Days at Sea	Activity for the Segment	Activity to the Fleet
DFN	VL0006	332	258.58	3207.83	2621	28.07%	11.38%
	VL0612	476	900.61	12386.8	5064	54.24%	21.98%
	VL1218	14	248.35	1757.76	1254	13.43%	5.44%
	VL1824	2	64.76	551.63	322	3.45%	1.40%
	VL2440	1	78.61	574	75	0.80%	0.33%
	Total:	825	1550.91	18478.02	9336		40.52%
FPO	VL0612	29	97.69	870.82	525	100.00%	2.28%
	Total:	29	97.69	870.82	525		2.28%
HOK	VL0006	13	10.37	172.83	43	39.45%	0.19%
	VL0612	17	26.81	414.76	66	60.55%	0.29%
	Total:	30	37.18	587.59	109		0.47%
PGP	VL0006	11	7.83	110.71	62	25.62%	0.27%
	VL0612	7	18.01	366.71	72	29.75%	0.31%
	VL1218	1	26.11	147.1	108	44.63%	0.47%
	Total:	19	51.95	624.52	242		1.05%
PMP	VL0006	64	51.52	603.81	1398	19.73%	6.07%
	VL0612	133	338.35	4311.71	4290	60.54%	18.62%
	VL1218	16	298.25	2370.19	1343	18.95%	5.83%
	VL1824	1	39.61	308.91	55	0.78%	0.24%
	Total:	214	727.73	7594.62	7086		30.76%
PS	VL0006	11	7.02	36.35	84	77.78%	0.36%
	VL0612	3	3.36	28.32	24	22.22%	0.10%
	Total:	14	10.38	64.67	108		0.47%
TBB	VL0612	1	9.92	55.16	64	19.51%	0.28%
	VL1218	2	34.5	290.47	151	46.04%	0.66%
	VL1824	2	100.51	499.81	113	34.45%	0.49%
	Total:	5	144.93	845.44	328		1.42%
TM	VL0612	6	67.93	643.59	248	4.67%	1.08%
	VL1218	20	413.38	3397.24	2123	40.01%	9.21%
	VL1824	10	482.86	2452.39	1109	20.90%	4.81%
	VL2440	10	1114.07	2714.9	1826	34.41%	7.93%
Total:		46	2078.24	9208.12	5306		23.03%
<b>Total:</b>		1182	4699.01	38273.8	23040		



**Table 4** shows the number of fishing vessels for each segment, as well as data on their activity against the segment and on the total activity for the year. For the year 2021, activity in DFN segments was 40.52 % - the highest one observed, PMP – 30.76 % and TM – 23.03 %. The two largest segments are DFN - 825 fishing vessels and PMP - 214 fishing vessels, as these two segments are 88 % of the entire fleet. Coastal fishing vessels segment with a total length of up to 12 meters (VL 0012) is most representative into the DFN and PMP segments, as the most active are DFN VL 0612 with 31.82 % and TBB VL 0612 with 30.82 % to the total small-scale fishing activity for 2021 - **Table 5** and **Figure 2**.

**Table 5:** Fishing in segment VL 0012 for 2021

Segment		LOA	Number of vessels		GT	kW	Days at Sea	
LOA 0012	DFN	VL0006	332	30%	258.58	3207.83	2650	18.53%
		VL0612	476	43%	900.61	12386.8	4551	31.82%
	FPO	VL0006	29	3%	97.69	870.82	74	0.52%
	HOK	VL0612	13	1%	10.37	172.83	47	0.33%
		VL0006	17	2%	26.81	414.76	28	0.20%
	PGP	VL0612	11	1%	7.83	110.71	690	4.82%
		VL0006	7	1%	18.01	366.71	80	0.56%
	PMP	VL0612	64	6%	51.52	603.81	123	0.86%
		VL0006	133	12%	338.35	4311.71	30	0.21%
	PS	VL0612	11	1%	7.02	36.35	38	0.27%
		VL0006	3	0%	3.36	28.32	1383	9.67%
	TBB	VL0612	1	0%	9.92	55.16	4409	30.82%
	TM	VL0612	6	1%	67.93	643.59	201	1.41%
Total			1103		1798	23209.4	14304	

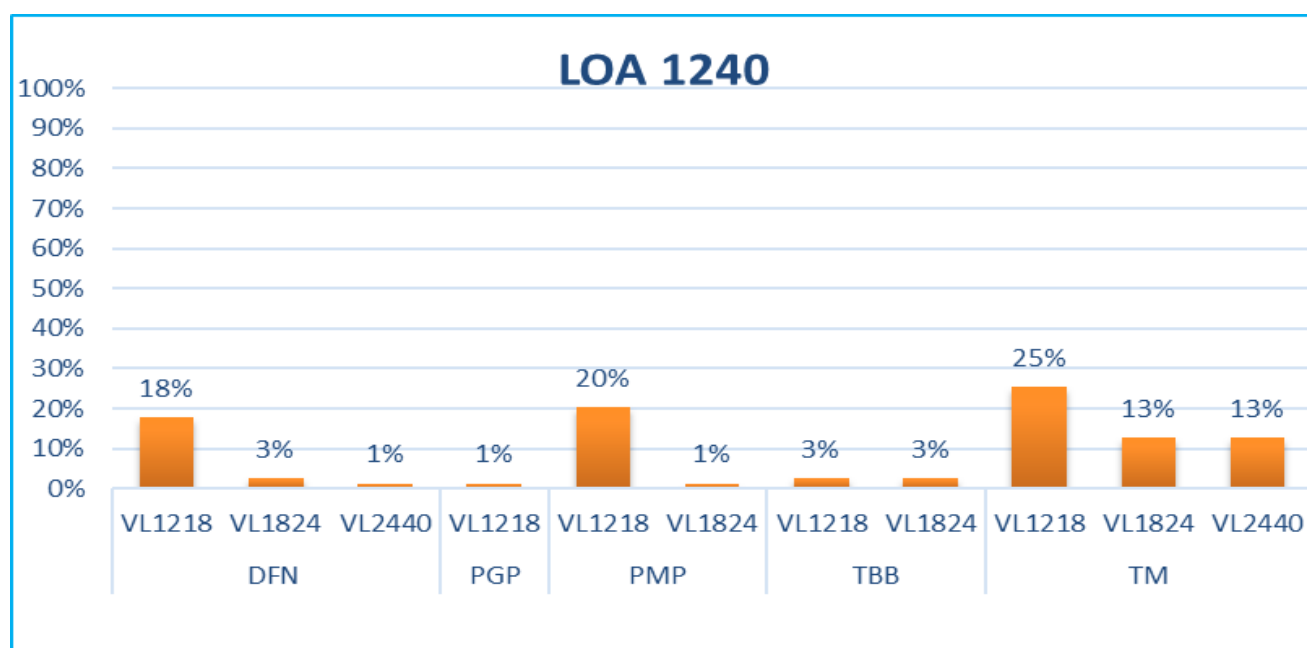


**Figure 2:** Percentage distribution of the fishing vessels VL 0012

Regarding the case of VL 1240 fishing vessels, the TM - 40 fishing vessels is the most numerous. The most active are TM VL 1218 with 20.73 %, TM VL 2440 with 18.71 % and DFN VL 1218 with 18.10 % (Table 6 and Figure 3)

**Table 6:** Fishing vessels having LOA VL 1240

Segment	LOA	Number of vessels		GT	kW	Days at Sea		
LOA 1240	DFN	VL1218	14	18%	248.35	1757.76	1543	18.10%
		VL1824	2	3%	64.76	551.63	458	5.37%
		VL2440	1	1%	78.61	574	98	1.15%
	PGP	VL1218	1	1%	26.11	147.1	102	1.20%
	PMP	VL1218	16	20%	298.25	2370.19	88	1.03%
		VL1824	1	1%	39.61	308.91	1484	17.40%
	TBB	VL1218	2	3%	34.5	290.47	392	4.60%
		VL1824	2	3%	100.51	499.81	98	1.15%
	TM	VL1218	20	25%	413.38	3397.24	1768	20.73%
		VL1824	10	13%	482.86	2452.39	901	10.57%
		VL2440	10	13%	1114.07	2714.9	1595	18.71%
	Total	79		2901.01	15064.4	8527		



**Figure 3:** Percentage distribution of the fishing vessels VL 1240





## A. 2. Relation to fisheries

In the analysis of the fishing activities of the Bulgarian fishing fleet, it has to be taken into account the ecological characteristics of the Black Sea as a closed sea basin, other than other marine basins in terms of natural environment, with less salinity and over 90% of its deeper water volume, consisting of anoxic water affecting biodiversity in the Black Sea. The Black Sea is a relatively closed water basin, connected to the Mediterranean Sea through the Turkish Straits. For this reason, and due to the presence of some of the great rivers in Europe, flowing into its waters, the salinity of the Black Sea is much lower than that of the World Ocean, which affects the distribution of a number of species that do not tolerate low salinity. It should also be borne in mind that, due to the high concentration of hydrogen sulphide at depths exceeding 200 meters, which in addition to biodiversity also has a significant impact on fishing activities, as in practice it severely restricts fishing fleets' hunting grounds.

The most targeted species in Black Sea are:

- Pelagic species: European sprat (*Sprattus sprattus sulinus*), Mediterranean Horse Mackerel (*Trachurus mediterraneus ponticus*), Flathead Grey Mullet (*Mugil cephalus*), Bonito (*Sarda sarda*), Bluefish (*Pomatomus saltatrix*);
- Demersal species: Red Mullet (*Mullus barbatus*), Piked Dogfish (*Squalus acanthias*), Thornback ray (*Raja clavata*), Turbot (*Scophthalmus maximus*), Gobies (*Gobiidae*).
- Molluscs: Rapa wealk (*Rapana venosa*) and White sand clam (*Mya arenaria*).

For 2021 the total amount of landings in Black Sea from Bulgarian fishing fleet is 8,920.5 tons, which is a raise of 43 % to 2020 figures.

Most of the vessels of less than 12 meters in length are mainly engaged in small-scale fisheries deploying gill-nets (anchored). Vessels of over 12 m in length use mainly pelagic trawls to fish as a preferred gear. Amongst all species in the Black Sea, for our country there are introduced quotas only for turbot and sprat, applicable since 2007. For 2021 the fishing opportunities for Black Sea were laid down in Council Regulation 2021/90 (28 Jan, 2021), which was amended by another Council Regulation 2021/2002 (15 Nov., 2021) with regard to turbot, so that the final quotas for 2021 are as follows:

- For turbot – 87.825 tons;
- For sprat – 8,032.5 tons.

- For Piked Dogfish (DGS) - there is no total allowable catch or quota for catches of the Piked Dogfish (*Squalus acanthias*) in Black Sea. In 2015, when defining the fishing opportunities for certain fish stocks in the Black Sea for 2016, the Republic of Bulgaria has made a political commitment for 2016 not to exceed the landings of Piked Dogfish, discharged in 2015, up to 133 tons ceiling. This commitment is taken as a precautionary measure aimed at protecting the Piked Dogfish in Black Sea and is renewed annually when determining the annual fishing opportunities for certain fish stocks in the Black Sea waters. Since then, the catch of the Black Sea Piked Dogfish has fallen considerably.

During the 44th session of the GFCM, held in the period of 02-06 Nov., 2021, in Appendix № 13-Recommendation GFCM /44/2021/10, a text was adopted, concerning the management measures for sustainable fishing of the Black Sea Piked Dogfish. In it, the general objectives of the transitional management measures set out in Paragraph 1 shall be attained while maintaining the fishing fleet capacity or fishing effort at the levels authorized and exerted during the years 2015-2021.

For 2021, the catches of Turbot are 70.38 tons, Sprat – 3,478.8 tons, Piked Dogfish – 19.7 tons, incl. IUU fishing.

Detailed information on the catches of the main species of fish and other aquatic organisms in the Black Sea is presented in the tables below.

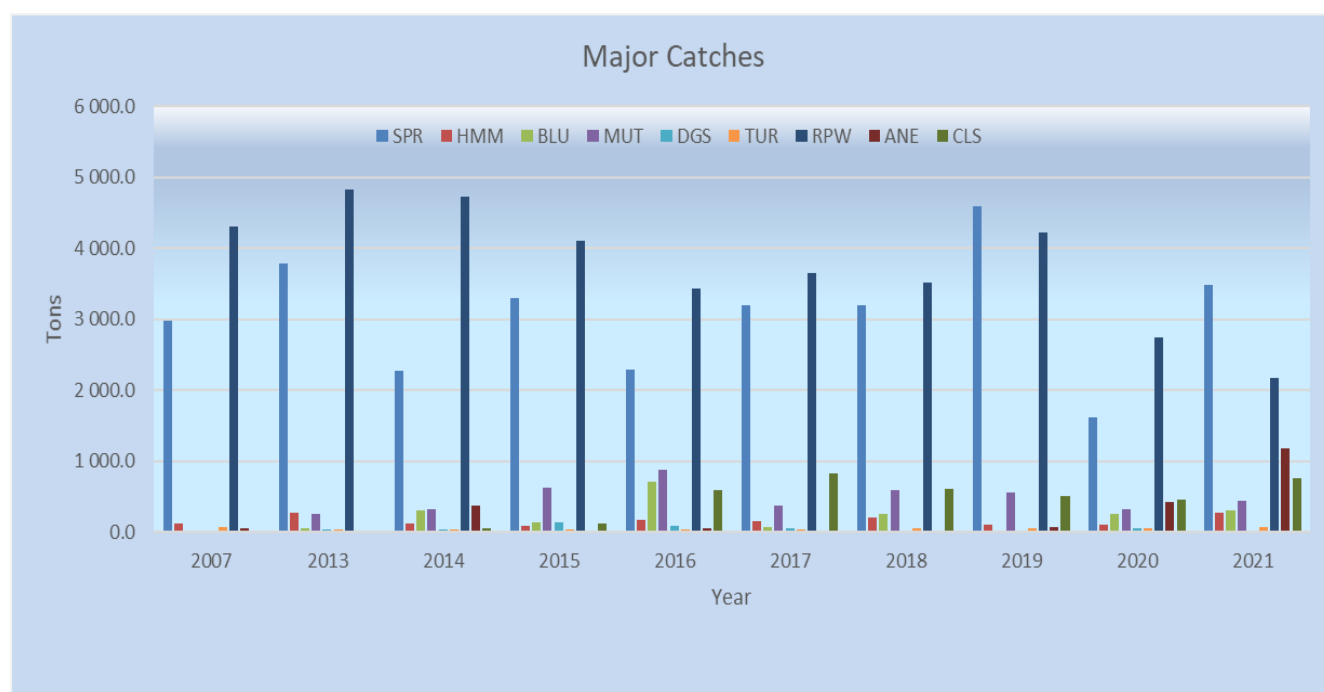


**Table 7:** Catches of the main species of fish in Black Sea in metric tons 2007 – 2021.

Main targeted species	FAO Code	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021
<i>European sprat</i>	SPR	2 984.6	3 784.2	2 279.1	3 297.0	2 295.5	3 188.9	3 187.8	4 584.6	1 622.7	3 478.8
<i>Med. horse mackerel</i>	HMM	115.9	271.4	113.1	87.2	166.2	153.5	196.7	101.6	108.8	274.1
<i>Atlantic bonito</i>	BON	0.9	6.1	5.5	7.7	68.2	13.0	22.9	3.7	31.5	1.5
<i>Bluefish</i>	BLU	8.2	49.0	304.7	138.4	712.2	71.0	260.7	24.0	253.2	302.1
<i>Red mullet</i>	MUT	12.6	256.8	328.8	632.6	877.4	374.6	595.2	554.3	319.3	445.4
<i>Piked dogfish</i>	DGS	24.0	30.9	34.0	133.0	83.5	50.5	10.1	16.8	47.5	19.7
<i>Turbot</i>	TUR	66.9	39.6	39.4	43.0	42.4	41.8	55.4	54.9	61.6	70.4
<i>Rapana venosa</i>	RPW	4 310.0	4 819.1	4 732.4	4 100.6	3 436.3	3 653.1	3 515.4	4 222.1	2 745.6	2 166.4
<i>Gobies nei</i>	GPA	73.9	74.0	63.7	47.9	64.2	39.7	25.1	31.2	33.7	32.4
<i>Thornback ray</i>	RJC	3.6	56.1	70.3	43.2	35.7	48.9	13.1	9.1	17.2	17.6
<i>Anchovy</i>	ANE	60.4	9.9	369.6	12.5	54.5	3.6	4.8	70.6	422.2	1 176.8
<i>Soft-shelled clam</i>	CLS	0.0	10.3	61.0	124.3	583.4	818.9	600.5	507.8	462.2	758.1

The total yearly amount of IUU-fishing is 0.15 tons.

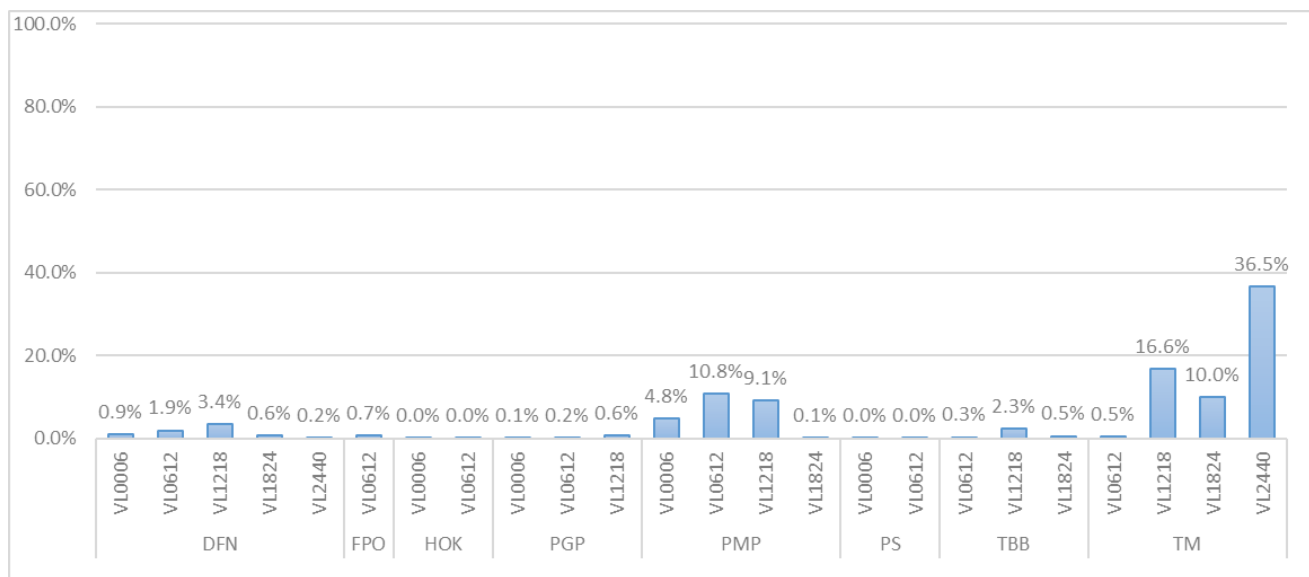
**Table 7.1.** Catches of bulky species trends.



As can be seen from **Tables 7** and **7.1.** content, there is a significant increase in the catch of sprat and anchovy - species featuring a local importance, while at the same time catches of rapana have decreased significantly compared to 2020 levels.

The following segments have the largest percentage of the landings in 2021 - TM 2440 – 36.5 %, TM 1218 – 16.6 % and PMP 0612 – 10.8 % - **Figure 4.**





**Figure 4:** Percentage ratio of landings by the fleet segments to total landings for 2021.

**Table 8:** Value of the landings of the top of the species (average first sale price) for each of the segments – 2021 .

Segment	Species	Code	Landings, kilos	Price	Value, EUR
DFN VL0006	Anchovy	ANE	497.00	0.93	459.94
	Bluefish	BLU	17764.90	3.10	55134.11
	Atlantic bonito	BON	147.00	3.58	526.12
	Soft-shelled clam	CLS	1499.00	2.22	3333.96
	Common shrimp	CSH	25.00	1.45	36.17
	Piked dogfish	DGS	118.00	2.16	254.60
	Eryphia spinifrons	EIK	21.00	3.58	75.16
	Flounder	FLE	25.00	1.10	27.61
	Garpike	GAR	1275.20	2.27	2894.88
	Gobies	GPA	11230.48	1.29	14469.97
	Mediterranean horse mackerel	HMM	20750.10	1.56	32358.54
	Common stingray	JDP	48.00	1.06	50.80
	Leaping mullet	LZS	848.10	1.19	1010.35
	Golden grey mullet	MGA	405.10	0.80	323.11
	Black mussel	MSM	15074.00	0.44	6705.28
	Flathead mullet	MUF	2089.00	1.65	3449.93
	Red mullet	MUT	1119.20	1.23	1379.09
	So-iuy mullet	MYZ	26.30	2.71	71.40



	Thornback ray	RJC	232.00	1.28	296.55
	Rapa whelk	RPW	840.00	0.50	420.90
	Shad	SHC	8469.85	2.03	17235.65
	Silverside	SIL	42.00	0.66	27.70
	European sprat	SPR	25.00	0.53	13.29
	Turbot	TUR	914.45	5.94	5428.27
	Whiting	WHG	26.00	1.07	27.92
	Deepwater prawn		1.00	2.24	2.24
<b>DFN VL0612</b>	Anchovy	ANE	391.00	0.93	361.85
	Bluefish	BLU	28804.25	3.10	89395.19
	Atlantic bonito	BON	843.00	3.58	3017.13
	Soft-shelled clam	CLS	1360.00	2.22	3024.80
	Common shrimp	CSH	32.00	1.45	46.30
	Piked dogfish	DGS	2455.00	2.16	5297.04
	Eryphia spinifrons	EIK	5.00	3.58	17.90
	Flounder	FLE	17.00	1.10	18.77
	Garpike	GAR	1418.20	2.27	3219.51
	Gobies	GPA	16452.00	1.29	21197.67
	Mediterranean horse mackerel	HMM	10965.80	1.56	17100.51
	Common stingray	JDP	99.00	1.06	104.78
	Leaping mullet	LZS	612.90	1.19	730.15
	Golden grey mullet	MGA	549.50	0.80	438.29
	Black mussel	MSM	20430.20	0.44	9087.84
	Flathead mullet	MUF	1825.10	1.65	3014.10
	Red mullet	MUT	3923.00	1.23	4833.97
	So-iuy mullet	MYZ	207.00	2.71	562.00
	Thornback ray	RJC	4384.32	1.28	5604.17
	Rapa whelk	RPW	50169.20	0.50	25138.08
	Shad	SHC	9924.30	2.03	20195.37
	European sprat	SPR	1911.00	0.53	1016.16
	Turbot	TUR	9960.23	5.94	59124.91
Whiting	WHG	161.00	1.07	172.87	
Deepwater prawn		51.00	2.24	114.21	
<b>DFN VL1218</b>	Anchovy	ANE	50350.00	0.93	46595.82
	Bluefish	BLU	10929.00	3.10	33918.61
	Piked dogfish	DGS	7312.00	2.16	15776.75
	Gobies	GPA	20.00	1.29	25.77
	Mediterranean horse mackerel	HMM	3311.00	1.56	5163.31
	Common stingray	JDP	40.00	1.06	42.33
	Red mullet	MUT	50322.00	1.23	62007.44



	Thornback ray	RJC	2916.00	1.28	3727.32
	Rapa whelk	RPW	77348.00	0.50	38756.46
	Silverside	SIL	140.00	0.66	92.34
	European sprat	SPR	83601.00	0.53	44454.29
	Turbot	TUR	11245.88	5.94	66756.65
	Whiting	WHG	3808.50	1.07	4089.24
<b>DFN VL1824</b>	Anchovy	ANE	45.00	0.93	41.64
	Bluefish	BLU	4318.00	3.10	13401.09
	Piked dogfish	DGS	3072.00	2.16	6628.31
	Mediterranean horse mackerel	HMM	480.00	1.56	748.53
	Common stingray	JDP	2000.00	1.06	2116.75
	Red mullet	MUT	514.00	1.23	633.36
	Thornback ray	RJC	3051.00	1.28	3899.88
	Rapa whelk	RPW	33670.00	0.50	16870.89
	Silverside	SIL	145.00	0.66	95.64
	Turbot	TUR	2794.10	5.94	16586.05
	Whiting	WHG	47.00	1.07	50.46
<b>DFN VL2440</b>	Bluefish	BLU	6150.00	3.10	19086.78
	Mediterranean horse mackerel	HMM	6530.00	1.56	10183.14
	Turbot	TUR	1335.00	5.94	7924.69
<b>FPO VL0612</b>	Anchovy	ANE	3400.80	0.93	3147.23
	Bluefish	BLU	715.00	3.10	2219.03
	Atlantic bonito	BON	127.00	3.58	454.54
	Garpike	GAR	736.60	2.27	1672.18
	Gobies	GPA	382.00	1.29	492.19
	Mediterranean horse mackerel	HMM	34561.60	1.56	53896.75
	Leaping mullet	LZS	16.00	1.19	19.06
	Golden grey mullet	MGA	15.00	0.80	11.96
	Red mullet	MUT	89.00	1.23	109.67
	Shad	SHC	2457.30	2.03	5000.46
	European sprat	SPR	21437.30	0.53	11399.15
<b>HOK VL0006</b>	Bluefish	BLU	20.00	3.10	62.07
	Piked dogfish	DGS	45.30	2.16	97.74
	Garpike	GAR	43.00	2.27	97.62
	Gobies	GPA	45.20	1.29	58.24
	Mediterranean horse mackerel	HMM	125.90	1.56	196.33
	Shad	SHC	4.00	2.03	8.14
<b>HOK VL0612</b>	Bluefish	BLU	79.00	3.10	245.18
	Piked dogfish	DGS	135.90	2.16	293.22
	Garpike	GAR	4.00	2.27	9.08



	Gobies	GPA	146.40	1.29	188.63
	Mediterranean horse mackerel	HMM	124.80	1.56	194.62
	Shad	SHC	5.00	2.03	10.17
<b>PGP VL0006</b>	Anchovy	ANE	55.00	0.93	50.90
	Bluefish	BLU	19.50	3.10	60.52
	Soft-shelled clam	CLS	420.00	2.22	934.13
	Gobies	GPA	796.60	1.29	1026.38
	Mediterranean horse mackerel	HMM	84.80	1.56	132.24
	Leaping mullet	LZS	33.00	1.19	39.31
	Flathead mullet	MUF	43.00	1.65	71.01
	Rapa whelk	RPW	7150.00	0.50	3582.62
	Shad	SHC	50.50	2.03	102.76
	Silverside	SIL	10.00	0.66	6.60
	Deepwater prawn		2.00	2.24	4.48
	<b>PGP VL0612</b>	Bluefish	BLU	51.00	3.10
Atlantic bonito		BON	140.00	3.58	501.07
Soft-shelled clam		CLS	1692.00	2.22	3763.21
Garpike		GAR	23.00	2.27	52.21
Gobies		GPA	946.30	1.29	1219.27
Mediterranean horse mackerel		HMM	33.00	1.56	51.46
Red mullet		MUT	20.00	1.23	24.64
Thornback ray		RJC	3.00	1.28	3.83
Rapa whelk		RPW	10370.00	0.50	5196.05
Shad		SHC	29.00	2.03	59.01
European sprat		SPR	255.00	0.53	135.59
Turbot		TUR	328.00	5.94	1947.04
<b>PGP VL1218</b>	Bluefish	BLU	4985.00	3.10	15471.16
	Piked dogfish	DGS	165.00	2.16	356.01
	Mediterranean horse mackerel	HMM	980.00	1.56	1528.25
	Red mullet	MUT	8991.00	1.23	11078.83
	Rapa whelk	RPW	36832.00	0.50	18455.26
	Silverside	SIL	1178.00	0.66	776.97
	Turbot	TUR	811.00	5.94	4814.18
<b>PMP VL0006</b>	Anchovy	ANE	44.00	0.93	40.72
	Bluefish	BLU	450.20	3.10	1397.21
	Soft-shelled clam	CLS	251675.00	2.22	559755.32
	Common shrimp	CSH	116.50	1.45	168.57
	Eryphia spinifrons	EIK	40.00	3.58	143.16
	Garpike	GAR	25.00	2.27	56.75
	Gobies	GPA	47.00	1.29	60.56



	Mediterranean horse mackerel	HMM	97.00	1.56	151.27
	Leaping mullet	LZS	15.80	1.19	18.82
	Black mussel	MSM	1668.50	0.44	742.19
	Flathead mullet	MUF	257.80	1.65	425.75
	Rapa whelk	RPW	172148.00	0.50	86257.52
	Shad	SHC	232.20	2.03	472.51
	Silverside	SIL	89.00	0.66	58.70
<b>PMP VL0612</b>	Bluefish	BLU	2684.80	3.10	8332.39
	Atlantic bonito	BON	226.00	3.58	808.86
	Soft-shelled clam	CLS	500904.50	2.22	1114071.56
	Common shrimp	CSH	1385.80	1.45	2005.19
	Piked dogfish	DGS	1156.00	2.16	2494.25
	Garpike	GAR	46.00	2.27	104.43
	Gobies	GPA	1818.20	1.29	2342.67
	Mediterranean horse mackerel	HMM	1067.80	1.56	1665.17
	Leaping mullet	LZS	180.00	1.19	214.44
	Black mussel	MSM	36854.50	0.44	16393.76
	Flathead mullet	MUF	43.00	1.65	71.01
	Red mullet	MUT	2062.00	1.23	2540.82
	Thornback ray	RJC	888.90	1.28	1136.22
	Rapa whelk	RPW	405454.00	0.50	203159.23
	Shad	SHC	892.70	2.03	1816.59
	European sprat	SPR	0.00	0.53	0.00
	Turbot	TUR	2573.25	5.94	15275.07
	Whiting	WHG	822.00	1.07	882.59
	Deepwater prawn		68.60	2.24	153.63
<b>PMP VL1218</b>	Anchovy	ANE	7803.00	0.93	7221.20
	Bluefish	BLU	22852.00	3.10	70922.14
	Soft-shelled clam	CLS	90.00	2.22	200.17
	Piked dogfish	DGS	1054.00	2.16	2274.16
	Gobies	GPA	26.00	1.29	33.50
	Mediterranean horse mackerel	HMM	7904.00	1.56	12325.82
	Common stingray	JDP	5.00	1.06	5.29
	Black mussel	MSM	3155.00	0.44	1403.42
	Red mullet	MUT	69854.00	1.23	86075.04
	Thornback ray	RJC	2152.00	1.28	2750.75
	Rapa whelk	RPW	679683.00	0.50	340566.07
	Silverside	SIL	2987.00	0.66	1970.13
	European sprat	SPR	250.00	0.53	132.94
	Turbot	TUR	12535.20	5.94	74410.18



	Whiting	WHG	120.00	1.07	128.85
<b>PMP VL1824</b>	Anchovy	ANE	700.00	0.93	647.81
	Bluefish	BLU	120.00	3.10	372.43
	Mediterranean horse mackerel	HMM	6280.00	1.56	9793.28
	Thornback ray	RJC	203.00	1.28	259.48
	Turbot	TUR	1019.90	5.94	6054.23
<b>PS VL0006</b>	Anchovy	ANE	435.00	0.93	402.57
	Bluefish	BLU	17.00	3.10	52.76
	Common shrimp	CSH	2.00	1.45	2.89
	Garpike	GAR	20.00	2.27	45.40
	Gobies	GPA	59.20	1.29	76.28
	Mediterranean horse mackerel	HMM	196.00	1.56	305.65
	Leaping mullet	LZS	20.00	1.19	23.83
	Flathead mullet	MUF	568.30	1.65	938.53
	Red mullet	MUT	8.00	1.23	9.86
	Shad	SHC	37.00	2.03	75.29
	Silverside	SIL	567.00	0.66	373.97
	European sprat	SPR	1372.00	0.53	729.55
	Deepwater prawn		141.40	2.24	316.66
	<b>PS VL0612</b>	Anchovy	ANE	84.00	0.93
Bluefish		BLU	19.00	3.10	58.97
Common shrimp		CSH	7.00	1.45	10.13
Flounder		FLE	2.00	1.10	2.21
Garpike		GAR	17.00	2.27	38.59
Gobies		GPA	98.00	1.29	126.27
Mediterranean horse mackerel		HMM	507.00	1.56	790.64
Leaping mullet		LZS	17.00	1.19	20.25
Flathead mullet		MUF	100.00	1.65	165.15
Red mullet		MUT	80.00	1.23	98.58
Shad		SHC	19.00	2.03	38.66
Silverside		SIL	70.00	0.66	46.17
European sprat		SPR	30.00	0.53	15.95
Deepwater prawn			29.00	2.24	64.94
<b>TBB VL0612</b>	Rapa whelk	RPW	22755.00	0.50	11401.76
<b>TBB VL1218</b>	Bluefish	BLU	665.00	3.10	2063.86
	Soft-shelled clam	CLS	100.00	2.22	222.41
	Piked dogfish	DGS	43.00	2.16	92.78
	Black mussel	MSM	6000.00	0.44	2668.94
	Red mullet	MUT	1555.00	1.23	1916.09
	Rapa whelk	RPW	194014.00	0.50	97213.83





	Shad	SHC	180.00	2.03	366.29
	Silverside	SIL	1400.00	0.66	923.39
	Turbot	TUR	936.00	5.94	5556.19
<b>TBB VL1824</b>	Anchovy	ANE	20.00	0.93	18.51
	Bluefish	BLU	7545.00	3.10	23416.22
	Mediterranean horse mackerel	HMM	8085.00	1.56	12608.07
	Black mussel	MSM	5584.00	0.44	2483.90
	Red mullet	MUT	2759.00	1.23	3399.68
	Rapa whelk	RPW	1556.00	0.50	779.66
	Shad	SHC	50.00	2.03	101.75
	Silverside	SIL	610.00	0.66	402.34
	European sprat	SPR	17672.00	0.53	9396.97
	Turbot	TUR	1437.00	5.94	8530.17
<b>TM VL0612</b>	Anchovy	ANE	7911.00	0.93	7321.14
	Bluefish	BLU	11218.00	3.10	34815.53
	Piked dogfish	DGS	132.00	2.16	284.81
	Gobies	GPA	189.00	1.29	243.52
	Mediterranean horse mackerel	HMM	2365.00	1.56	3688.08
	Common stingray	JDP	18.00	1.06	19.05
	Red mullet	MUT	14081.00	1.23	17350.80
	Thornback ray	RJC	108.50	1.28	138.69
	Rapa whelk	RPW	2200.00	0.50	1102.35
	Turbot	TUR	1871.85	5.94	11111.49
Whiting	WHG	1466.00	1.07	1574.06	
<b>TM VL1218</b>	Anchovy	ANE	119864.70	0.93	110927.38
	Bluefish	BLU	73541.00	3.10	228237.56
	Soft-shelled clam	CLS	350.00	2.22	778.44
	Piked dogfish	DGS	3194.00	2.16	6891.54
	Gobies	GPA	175.00	1.29	225.48
	Mediterranean horse mackerel	HMM	39237.00	1.56	61187.76
	Common stingray	JDP	445.00	1.06	470.98
	Red mullet	MUT	164924.20	1.23	203221.81
	Thornback ray	RJC	2753.00	1.28	3518.97
	Rapa whelk	RPW	284740.00	0.50	142673.55
	Shad	SHC	202.00	2.03	411.06
	Silverside	SIL	13792.00	0.66	9096.74
	European sprat	SPR	765986.00	0.53	407308.12
Turbot	TUR	12469.30	5.94	74019.00	
Whiting	WHG	2417.50	1.07	2595.70	
<b>TM VL1824</b>	Anchovy	ANE	169680.00	0.93	157028.37



	Bluefish	BLU	48254.00	3.10	149758.30
	Piked dogfish	DGS	770.00	2.16	1661.39
	Mediterranean horse mackerel	HMM	48883.00	1.56	76230.12
	Common stingray	JDP	629.00	1.06	665.72
	Red mullet	MUT	73642.00	1.23	90742.66
	Thornback ray	RJC	473.00	1.28	604.60
	Rapa whelk	RPW	176355.00	0.50	88365.50
	Shad	SHC	10.00	2.03	20.35
	Silverside	SIL	3503.00	0.66	2310.46
	European sprat	SPR	363350.00	0.53	193209.02
	Turbot	TUR	7722.50	5.94	45841.52
	Whiting	WHG	775.00	1.07	832.13
TM VL2440	Anchovy	ANE	815506.00	0.93	754700.49
	Bluefish	BLU	60905.00	3.10	189021.21
	Mediterranean horse mackerel	HMM	81512.00	1.56	127113.09
	Common stingray	JDP	228.00	1.06	241.31
	Black mussel	MSM	9060.00	0.44	4030.10
	Red mullet	MUT	51463.00	1.23	63413.40
	Thornback ray	RJC	400.00	1.28	511.29
	Rapa whelk	RPW	11140.00	0.50	5581.88
	Shad	SHC	17.00	2.03	34.59
	Silverside	SIL	4070.00	0.66	2684.44
	European sprat	SPR	2222910.00	0.53	1182018.07
	Turbot	TUR	2422.10	5.94	14377.82
	Whiting	WHG	555.00	1.07	595.91

### A.3. Development of the fleet

The development of the Bulgarian fishing fleet from 1 January 2007 to 31 December 2021 is presented in **Table 9**, **Fig. 5** and **Fig. 6**. As evidenced, the number of registered vessels has decreased by 29% according to data from the end of 2021, compared to the data of 31 Dec, 2007. Overall, the Bulgarian fishing fleet has decreased both in terms of tonnage and power, as a substantial decrease is recorded in the segment of 18 - 24 meters (both for vessels and tonnage). A significant drop is also seen in the segments of 6 to 12 meters, as well as 0 to 6 meters.

**Table 9.** Development of the Bulgarian Fishing Fleet.



Year	31.12.2007			31.12.2016			31.12.2017			31.12.2018			31.12.2019			31.12.2020			31.12.2021			Decrease to 2007		
Vessels	Vsl.	GT	kW	Vsl.	GT	kW	Vsl.	GT	kW	Vsl.	GT	kW	Vsl.	GT	kW	Vsl.	GT	kW	Vsl.	GT	kW	Vsl.	GT	kW
up to 6 m.	845	601	6594	655	488	6020	660	495	6131	663	496	6086	674	508	6282	682	519	6450	688	523	6635	-19%	-13%	1%
6 - 12 m	1595	3464	42173	1160	2466	32107	1128	2408	31057	1099	2317	30484	1073	2260	29675	1050	2201	28861	1032	2173	28468	-35%	-37%	-32%
12 - 18 m	66	1273	8625	67	1291	10377	64	1241	9900	66	1270	10129	65	1244	9809	65	1262	9974	65	1274	9974	-2%	0%	16%
18 - 24 m	29	1309	4819	17	738	3839	17	744	4149	18	813	4535	18	822	4535	18	822	4535	18	822	4535	-38%	-37%	-6%
24 - 40 m	12	1586	3304	11	1193	3289	11	1193	3289	11	1193	3289	11	1193	3289	11	1193	3289	11	1193	3289	-8%	-25%	0
Total	2547	8233	65515	1910	6176	55632	1880	6081	54525	1857	6088	54523	1841	6027	53590	1826	5997	53110	1814	5985	52902	-29%	-27%	-19%

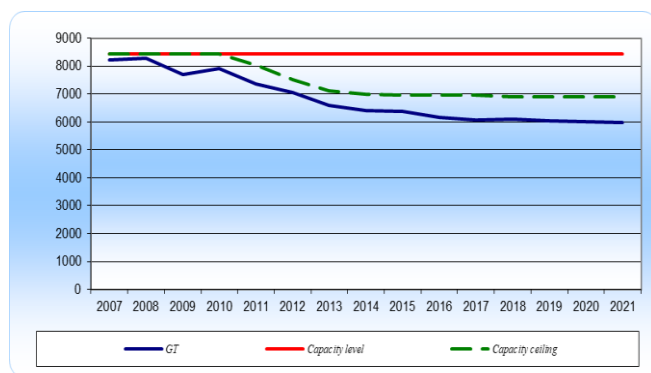


Figure 5. Capacity in GT for 2007-2021

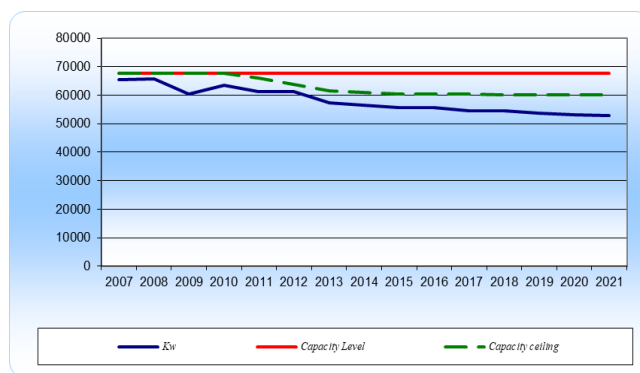


Figure 5. Capacity in kW for 2007-2021

## SECTION B.

### B.1. Report on effort reduction schemes

In compliance with the Operational Program “Fisheries sector development” for Programming period 2007-2013, Priority axis 1 “Measures for adaptation of the fishing fleet”, Measure 1.1. “Public aid for permanent cessation of fishing activities”, as well as under the Maritime Affairs and Fisheries Program for the 2014-2020 programming period, Union Priority 1 "Promoting environmentally sustainable, innovative, competitive and knowledge-based fisheries characterized by resource efficiency", Measure 1.3 "Permanent cessation of fishing activities", the decrease of the capacity is achieved, based on the national plans for adjustment of the fishing effort in direction of restructuring of the fishing fleet and conservation of its sustainable management, in compliance with the principles of the Common Fisheries Policy.

From the applied table for the implementation of the scheme for withdrawing from exploitation of vessels from the Bulgarian fishing fleet, it is obvious, that Bulgaria makes the greatest effort for withdrawing from exploitation of vessels in the segments LOA 12-18, LOA 18-24, LOA 24-40, as well as in the segment LOA 6-12. The implementation of the fishing effort adjustment plan is resumed in **Table 10**. The final effect of the implementation of the measure is shown on **Table 10.1** below.

**Table 10:** Implementation of the fishing fleet efforts adjustment plan (FEAP) until 31 Dec, 2018.



Bulgarian fishing fleet by 31 Dec, 2009								Implementation by 31 Dec, 2018				
Fleet segment	Vessels	kW	GT	kW	GT	kW %	GT %	Vessels	kW	GT	kW %	GT %
LOA <6	708	5,462.35	507.20	4,369.88	405.76	-20%	-20%	14	70.22	10.50	-1.29%	-2.07%
LOA 6<12	1,392	37,160	2,985.48	26,012	2,089.84	-30%	-30%	55	2,858.93	345.22	-7.69%	-11.56%
LOA 12<18	65	9,106.23	1,290	6,374.36	903.00	-30%	-30%	23	2,390.1	407.13	-26.25%	-31.56%
LOA 18<24	28	4,773.66	1,253.4	2,864.2	752.04	-40%	-40%	9	1,201.92	400.56	-25.18%	-31.96%
LOA >24	13	3,877.5	1,665	2,326.5	999.00	-40%	-40%	2	1,029.65	431.36	-26.55%	-25.91%
<b>Total</b>	<b>2,206</b>	<b>60,379.7</b>	<b>7,701.08</b>	<b>41,946.9</b>	<b>5,149.64</b>			<b>103</b>	<b>7,550.82</b>	<b>1,594.77</b>	<b>-12.51%</b>	<b>-20.71%</b>

**Table 10.1.** Scrapped vessels during 2018, DCF segmentation

Scrapped vessels during 2018			
DCF Segmentation	Брой кораби	GT	kW
<b>DFN 6-12</b>	6	40	349.37
<b>PMP 6-12</b>	2	9.72	71.98
<b>Total</b>	<b>8</b>	<b>49.72</b>	<b>421.35</b>

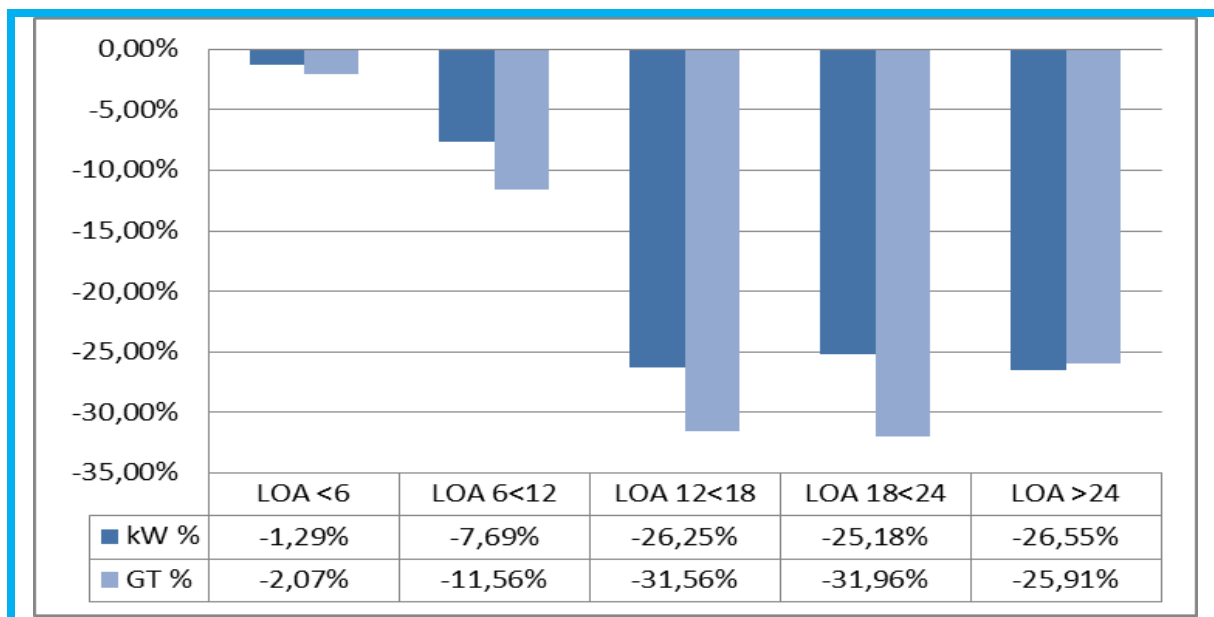
## B.2. Impact of effort reduction schemes on fishing capacity

During 2018, as a result of the implementation of FEAP, 8 fishing vessels were scrapped, as all of them fall within LOA 6-12 segment (6 in DFN 6-12 and 2 in PMP 6-12, according to the DCF segmentation), as the total vessels number increases to 103 vessels, with total fishing capacity of 1,594.77 GT and 7,550.82 kW.

In 2021, there are no scrapped fishing vessels due to the end of the measure.

In conclusion from the data presented, it can be considered that after the adoption of the FEAP, the Republic of Bulgaria has made the necessary efforts to reduce the pressure on fish stocks and the restructuring of its fishing fleet. The result of the permanent cessation of fishing activities of vessels has reduced the pressure on stocks, which is a key factor in improving the condition of the entire population and in achieving a balance between fishing capacity and fishing opportunities.





**Figure 7.** Reduction of Bulgarian fishing fleet in kW and GT

## SECTION C

### C.1. Statement on the compliance with the entry/exit scheme and the referent level

The capacity of the Bulgarian fishing fleet on 1 January, 2007 is as follows:  $GT_{07} = 8,448$  GT and  $kW_{07} = 67,607$  kW.

**Table 11:** Calculation of the baseline: ( $GT_{07}$  and  $kW_{07}$ ) at 01 January, 2007

$GT_{FR}$	$GT_1$	$GT_2$	$GT_3$	$GT_4$	$GT_{07}$	$kW_{FR}$	$kW_1$	$kW_2$	$kW_3$	$kW_4$	$kW_{07}$
8,147	301	0	0	0	8,448	64,924	2,683	0	0	0	67,607

Each entry (or increase in tonnage or engine power) in the fleet register has been accompanied by the at least the same quantity withdrawal from the fleet. So Bulgaria can guarantee that the national fleet capacity in tonnage (GT) and (kW) is equal or less than the referent level at the date of the accession in EU, in line with article 8 of Regulation 1013/2010 and article 23 of Regulation 1380/2013

**Table 12:** Information on the vessel capacity, entered or withdrawn from the fleet register in the period 2007-2021.



Entry/Exit regime	GT															kW															
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
ENTRY	Vessels entered the FR after withdrawal	3	3	86	328	217	338	583	159	77	208	44	202	97	118	84	55	50	420	3 894	1 412	3 099	6 284	3 564	787	2 720	766	2 160	950	1 362	1 428
	Vessels entered the FR after the accession date,	86	44	171	-	-	-	-	-	-	-	-	-	-	-	-	700	401	1 582	-	-	-	-	-	-	-	-	-	-	-	-
	<b>Total</b>	<b>89</b>	<b>48</b>	<b>257</b>	<b>328</b>	<b>217</b>	<b>338</b>	<b>583</b>	<b>159</b>	<b>77</b>	<b>208</b>	<b>44</b>	<b>202</b>	<b>97</b>	<b>118</b>	<b>84</b>	<b>756</b>	<b>451</b>	<b>2 002</b>	<b>3 894</b>	<b>1 412</b>	<b>3 099</b>	<b>6 284</b>	<b>3 564</b>	<b>787</b>	<b>2 720</b>	<b>766</b>	<b>2 160</b>	<b>950</b>	<b>1 362</b>	<b>1 428</b>
EXIT	Financed with public aid	-	-	-	442	537	419	124	24	-	-	50	-	-	-	-	-	-	-	1 514	2 176	2 413	778	249	-	-	421	-	-		
	Without public aid	2	5	830	97	344	116	640	207	109	403	148	146	167	156	103	164	85	7 449	883	1 932	868	7 843	1 504	1 365	3 006	2 049	1 741	1 708	1 958	16
	<b>Total</b>	<b>2</b>	<b>5</b>	<b>830</b>	<b>97</b>	<b>785</b>	<b>653</b>	<b>1 059</b>	<b>331</b>	<b>133</b>	<b>403</b>	<b>148</b>	<b>196</b>	<b>167</b>	<b>156</b>	<b>103</b>	<b>164</b>	<b>85</b>	<b>7 449</b>	<b>883</b>	<b>3 446</b>	<b>3 044</b>	<b>10 256</b>	<b>2 282</b>	<b>1 614</b>	<b>3 006</b>	<b>2 049</b>	<b>2 162</b>	<b>1 708</b>	<b>1 958</b>	<b>1 613</b>

**Table 13:** Management of the entry/exit regime on 31 December, 2021.

	Item	GT		kW	
		GT <sub>FR</sub>	GT <sub>07</sub>	kW <sub>FR</sub>	kW <sub>07</sub>
1	Capacity of the Fleet on 01 Jan, 2007	GT <sub>FR</sub>	8 147	kW <sub>FR</sub>	64 924
2	Capacity level for the application of the entry/exit regime	GT <sub>07</sub>	8 448	kW <sub>07</sub>	67 607
3	Entries of vessels of more than 100 GT financed with public aid	GT <sub>100</sub>	0	kW <sub>100</sub>	0
4	Other entries or capacity increases (not included in 3 & 5)		2 918		30 966
5	Increases in the tonnage (GT) for safety reasons	GT <sub>S</sub>	0		0
6	<b>Total entries (3+4+5)</b>		<b>2 918</b>		<b>30 966</b>
7	Exits before 1 January, 2007, financed with public aid	GT <sub>a1</sub>	0	kW <sub>a</sub>	0
8	Exits after 1 January, 2007, financed with public aid	GT <sub>a2</sub>	1 595		7 551
9	Other exits (not included in items 7 and 8)		3 484		35 438
10	<b>Total exits (7+8+9)</b>		<b>5 079</b>		<b>42 989</b>
11	Power of the engines, replaced using public aid, subject to power reduction.		0	kW <sub>r</sub>	0
12	<b>Fleet capacity on 31 Dec, 2021 (1+6-10)</b>	GT <sub>t</sub>	<b>5 985</b>	kW <sub>t</sub>	<b>52 902</b>
13	<b>Fleet ceiling on 31 Dec, 2021</b>		<b>6 917</b>		<b>60 056</b>

**Clarifications:**

- Lines 1, 3, 5, 7, 8, 9, 11 and 12 present figures as registered in the Community Fleet Register on 31/12/2021
- 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

**SECTION D SWOT**

**D.1. Summary of the strengths and weaknesses of the fleet management system**

Under the national law, all fishing vessels used for commercial fishing, must be registered first in the register of vessels, kept by the Executive Agency Maritime Administration (the Bulgarian institution responsible for the technical characteristics and condition of the vessels), as well as in the register of the



fishing vessels, kept by the Executive Agency for Fisheries and Aquaculture (the Bulgarian institution responsible for fisheries control).

In the management of the Bulgarian fleet, the basic principle is that the fishing capacity, representing an aggregate of the gross tonnage and the power of the vessel, can never be increased without firstly at least the same or greater fishing capacity to be withdrawn from the Bulgarian fishing fleet.

The implementation of fisheries management measures adopted in recent years at European and regional level has led to improved management of marine resources and their sustainable exploitation.

In the national legislation, measures are laid down which allow termination of the validity of the issued license for commercial fishing in case of non-practice of fishing activity for two consecutive calendar years. The released capacity consequently remains in favor of the state and is allocated to fishing vessels that have expressed their desire to engage in commercial fishing.

Regarding the management of the fishing effort regime, Bulgaria applies the provisions of Recommendation GFCM / 41/2017/4, according to which fishing vessels catching turbot must not exceed 180 days at sea per year.

#### **D.1.1. Weaknesses**

- Lack of conditions for direct sale between owners of fishing vessels and „end user” (customer), due to insufficiency of fish auctions - so far 5 have been identified, while the discharging ports are 75;
- High percentage of depreciation of fishing vessels obstructing the good economic efficiency;
- Low degree of investment in the replacement of fishing gears with more selective ones, and also in the safety conditions of the fishing vessels and ensuring better working conditions;
- High age of the fishing fleet;
- High average age of the employees in the sector;
- Dependence of fisheries on the seasonal catches of some valuable species;
- Relatively low average consumption of fish per capita;
- Use of fishing vessels (mainly in segment VL0006) to catch fish for personal use without being placed on the market;
- Restricted navigation area of significant part of the fleet. As it was mentioned above, Bulgarian fishing fleet consists mainly of small boats, major part of them are permitted to navigate within the area of 2 miles from the coast;
- The existence of provision in the Fisheries and Aquaculture Act, which does not allow the fishing capacity of inactive fishing vessels to be withdrawn, if they have applied for repair. This requirement does not oblige the proving of repairs and does not specify a period within which they can be performed, which allows the "retaining" of fishing capacity. This way it is impossible to transfer it to another fishing vessel that actually wish to carry out fishing activities;
- Low price of the first sale of some species;
- Unsufficient number of patrol boats, equipped with modern means of control.

#### **D.1.2. Strengths**

- Existence of Informational-Statistical system, where data from fishing fleet and catch reporting are recorded;



- Permanent presence of EAFA officials in most important ports and landing places, that, except power for efficient control, grants possibility for provision of important information, related to management of the fisheries, to the parties concerned;
- Raising the awareness of the persons concerned in the branch, through informational campaigns, regular meetings and publishing of information of EAFA's website;
- Permanent monitoring of fishing vessels targeting turbot. According to the rules established at national level, each vessel that intends to target turbot, shall be equipped with device, allowing monitoring its track, linked to the Fisheries Monitoring Center. In 2019, a large-scale project to modernize the center was completed, making it the most multifunctional in the region. It provided automated real and complete control over the movement and activities of fishing vessels and boats engaged in commercial fishing. Tracking devices have been replaced by new ones allowing the use of an electronic fishing logbook;
- Cooperation with other national authorities regarding the technical parameters of fishing vessels (with Executive Agency Maritime Administration-EAMA) and fight against IUU (Border Police, Bulgarian Food Safety Agency);
- Enhanced cooperative inspection of EAFA and EAMA in terms of controls and measurement of the engine power of fishing vessels;
- Regular training sessions of the EAFA staff;
- Increased monitoring and control activities, that improves the due management of fisheries through improved communication and coordination between regional offices and HQs;
- Improved legislative framework through adapting Fisheries and Aquacultures Act in order to undertake effective measures against inactive fishing vessels and non-submission of economic statistics form. These measures allow collecting of more reliable information of the state of fishing fleet of Bulgaria;
- The presence of administrative measures against IUU fisheries, through the implementation point system for serious infringements, allowing a withdrawal of fishing license;
- New by-laws to the national legal framework, supplementing its part for the management of the fishing fleet;
- Given that a major part of the Bulgarian fishing fleet can be classified as small-scale and coastal fishing, it can be concluded that fishing is carried out in an environmentally friendly manner.

## **D.2. Plan for improving the fleet management system**

The dedicated fish auctions, specialized in the recent years in the newly built fishing ports, do not work with its full capacity. Meetings with representatives of the fish industry and interested parties are planned in order to promote their use.

The Fisheries and Aquaculture Act provides a legal opportunity to withdraw fishing vessels that have not engaged in fishing activities for two consecutive years. The released capacity will be allocated to fishing vessels whose entering in the register will ensure renewal and modernization of the fleet as well as a more efficient use of fishing capacity.

Not a minor part of the valuable fish species and other aquatic organisms are migratory and their catches in the annual aspect are influenced by the number of passages, passing along the Bulgarian coast. The Fleet Management System through commercial fishing licenses is not aimed at issuing a license for a target species (except for the turbot) and thus enables fishermen to catch all allowable species, which





would compensate for annual fluctuations in catches of migratory fish and other aquatic organisms. The system for certification and engine power inspection system allows monitoring and control of the actual power of the propulsion engine and not exceeding the recorded power in the fishing license. The Executive Agency for Fisheries and Aquaculture and the Executive Agency Maritime Administration will continue their joint actions on the implementation of the Sample Plan for the Measurement of Engine Power of Fishing Vessels, approved in 2016. It is expected to be revised by the end of 2021. Over the next 3 years, Bulgaria will continue to apply at national level a ban on the use of trawling equipment in the waters up to 3 nautical miles from the coast, applying a derogation for a certain number of vessels in the area between 1 and 3 nautical miles. This allows smaller fishing vessels with a limited navigating area to deploy their fishing gear in the closer coastal zone, thus avoiding contact with larger vessels using active fishing gear..

### **D.3. Information about the general level of respecting the fleet policy tools**

The fleet is managed through a system of commercial fishing licenses, as it is laid down in the Fisheries and Aquacultures Act. The order and conditions for issuance of the commercial fishing licenses, special licences and authorizations are determined in line with the legislation of the European Union, according to the provision of art. 17, par. 7 of the Fisheries and Aquacultures Act.

The approach of implementation of the point system for serious infringements is applied into the national legislation through Ordinance 3 from 19 February 2013 for the implementation of point system for serious infringements according to Regulation (EC) 1005/2008 of the Council dated 29 Sept 2008 for creation of Community system for preventing, deterring and eliminating of the illegal, undeclared and unregulated fishing, for amendment of regulations (EIC) 2847/93, (EC) 1936/2001 and (EC) 601/2004 and for repealing of regulations (EC) 1093/94 and (EC) 1447/1999.

In 2020, electronic fishing logbook (ERS) equipment was installed on board fishing vessels of over 12 meters, and technical tests of the operation and training of masters of vessels were carried out. From 1 January 2021, information on fishing activities of vessels of over 12 meters in length will be reported electronically only.

## **SECTION E**

### **E.1. Information about the changes in the administrative procedures for the fleet management**

Two new by-laws regulating the management of the fishing fleet, the allocation of the fishing capacity and keeping the required registers have been prepared and are in force since Nov. 21, 2019. The Regulation on the terms and conditions for management of the fishing fleet of the Republic of Bulgaria is aimed at determining the terms and conditions for entry and withdrawal of vessels in the register of fishing vessels, as well as those for allocation of free fishing capacity in the navy released as a result of:

- Official withdrawal of fishing vessels from the Register of fishing vessels, kept by the Executive Agency for Fisheries and Aquaculture, pursuant to Art. 18c, para. 3 of the Fisheries and Aquaculture Act;
- Withdrawal of fishing vessels from the Register of Vessels, kept by the Executive Agency "Maritime Administration" under Art. 22, para. 1, item 1, item 3 and para. 2 of Ordinance № 1 of 2003 for entry in the Register of Ships;
- Expiration of validity certificates for free fishing capacity. Conducting a procedure for allocating



a free fishing capacity from two to three calendar years.

There is a text regulating as inadmissible for participation in the procedure for allocation of fishing capacity persons with granted public aid for permanent cessation of fishing activities under European fisheries funds. A minimum of eligibility and assessment criteria for participants in a procedure for allocating fishing capacity in the fleet have been established. An evaluation criterion is established, setting a ratio between the average registered gross tonnage and the average registered engine power in the register of fishing vessels for the respective segment by the total length overall of fishing vessels.

## SECTION F

### Indicators

Referring to the Guidelines for Improved Analysis of the Balance of Fishing Capacity and Fishing Opportunities, Bulgaria calculates the technical and economic indicators for 2019, 2020 and 2021, as shown below. For the calculation of the indicators, the data collected under the Data Collection Framework (DCF) for 2019, 2020 and 2021, and the EAFA information and statistical system, were used.

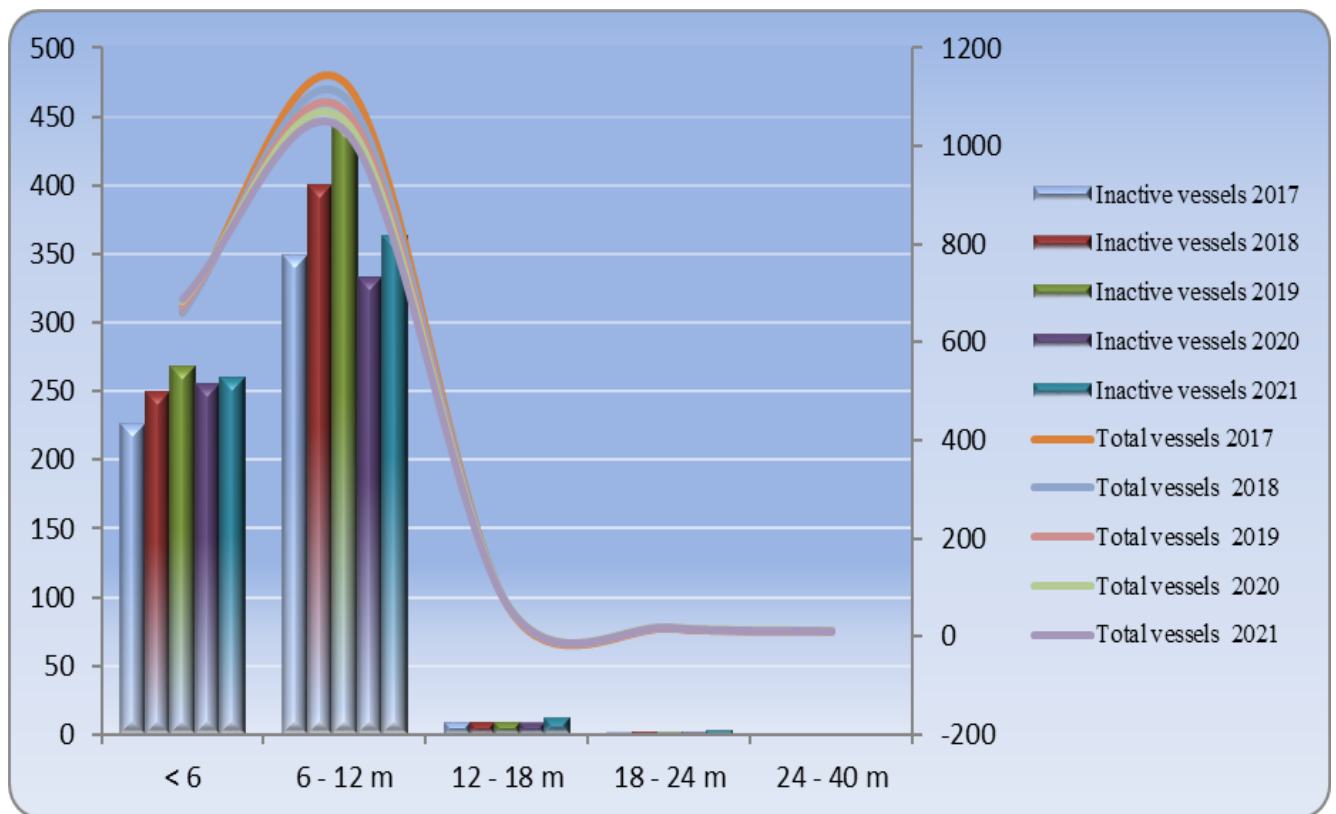
#### F.1. Technical Indicator

The technical indicator assessment has made according to the Guidelines and it is relevant for all active vessels during 2016, 2017, 2018, 2019 and 2020. The vessels are considered as active ones if they have fishing licenses and have reported at least one day at sea during the reference year. Vessels with or without a fishing license that did not report at least one day at sea and landings during the reference year are inactive (due to vessel repairs, sale, etc.)

**Table 14:** Proportion of inactive vessels in the whole fleet for 2017, 2018, 2019, 2020 and 2021.

LOA	<6					6 - 12 m					12 - 18 m					18 - 24 m					24 - 40 m				
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
Representative year	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
Inactive vessels	226	249	268	255	260	349	400	444	333	363	9	9	9	8	12	1	2	1	1	3	0	0	0	0	0
Total number	660	662	674	682	688	1 128	1 100	1 073	1 050	1 032	64	66	65	65	65	17	18	18	18	18	11	11	11	11	11





**Figure 8.** Chart of the inactive vessels throughout the years.

**Figure 8** shows the ratio between inactive fishing vessels and total number of fishing vessels in each fishing segment. As it is visible from the above shown chart, the percentage of inactive vessels, which represents the unused capacity, in the segments under 12 m (95.0 % from the Bulgarian fishing fleet), in 2020, is still high-about 36%. The main reasons for this figures are seasonable nature of fisheries, low return on funds, repair activities etc.

**Table 15** summarizes the technical indicator information for the 2019-2021 periods, calculated as the ratio of the current effort to the observed maximum effort. The observed maximum effort is calculated on the basis of the maximum days spent by a vessel in the relevant segment. This calculation option is preferred over the use of the theoretical number of days at sea, due to the fact, that no fixed areas exist in the Black Sea, where a total number of days at sea is fixed that a particular vessel may be present in, using a define gear or targeting a stock. For this reason, we believe that, in the absence of such restrictions, fishing vessels with similar characteristics may spend the same number of days at sea. Another reason for choosing the maximum number of days at sea is the possibility of comparability of data from previous years.

Considering biodiversity as target species related to the economic activity in all segments of the Bulgarian fishing fleet, it must be taken into account that this also reflects on the variations of the fishing gear used for the catches. This gives its reflection in the smaller number of vessels in the segmentation so represented. There is also a policy to promote the use of gentle passive fishing gear, with imposed restrictions on the mesh size of the nets, as well as the setting of minimum size ranges, for the purpose of conservation the fish stocks and biodiversity. This, in turn, should be taken into account for the segments, in which imbalance is observed.

A large number of the fishing vessels during the summer season are directed to the performing of tourist services.

**Table 15.** Technical indicator.

Métier	Vessel length	No of vessels 2019	No of vessels 2020	No of vessels 2021	Technical indicator 2 Ratio Current/ Teoretical Maximum					
					GT/Days 2019	GT/Days 2020	GT/Days 2021	kW/Days 2019	kW/Days 2020	kW/Days 2021
DFN	VL0006	298	326	332	0.19	0.16	0.15	0.19	0.16	0.13
PS	VL0006	13	8	11	0.98	1.32	0.95	0.90	1.50	1.10
PMP	VL0006	70	68	64	0.35	0.34	0.33	0.35	0.33	0.32
FPO	VL0006	3	3	-	-	-	-	-	-	-
HOK	VL0006	17	15	13	0.83	0.76	1.10	0.89	0.76	1.18
PGP	VL0006	7	8	11	0.80	0.63	0.94	0.80	0.80	0.67
<b>Total number</b>		<b>408</b>	<b>428</b>	<b>431</b>	<b>0.63</b>	<b>0.64</b>	<b>0.70</b>	<b>0.63</b>	<b>0.71</b>	<b>0.68</b>
DFN	VL0612	403	515	476	0.20	0.10	0.09	0.20	0.10	0.09
PS	VL0612	4	3	3	-	-	-	-	-	-
FPO	VL0612	32	34	29	0.42	0.43	0.48	0.44	0.44	0.50
HOK	VL0612	25	24	17	0.50	0.64	0.97	0.50	0.64	0.97
PGP	VL0612	14	9	7	0.69	0.60	1.03	0.69	0.60	1.03
PMP	VL0612	148	132	133	0.25	0.29	0.30	0.25	0.29	0.30
TM	VL0612	2	3	6	-	-	1.01	-	-	1.01
TBB	VL0612	3	-	1	-	-	-	-	-	-
<b>Total number</b>		<b>631</b>	<b>720</b>	<b>672</b>	<b>0.41</b>	<b>0.41</b>	<b>0.64</b>	<b>0.41</b>	<b>0.42</b>	<b>0.65</b>
DFN	VL1218	9	19	14	0.99	0.74	0.78	0.99	0.74	0.78
PGP	VL1218	-	1	1	-	-	-	-	-	-
PMP	VL1218	19	14	16	0.80	0.91	0.81	0.80	0.91	0.81
TBB	VL1218	7	1	2	1.00	-	-	1.00	-	-
HOK	VL1218	-	1	-	-	-	-	-	-	-
TM	VL1218	21	21	20	0.70	0.65	0.71	0.70	0.65	0.71
<b>Total number</b>		<b>56</b>	<b>57</b>	<b>53</b>	<b>0.87</b>	<b>0.76</b>	<b>0.77</b>	<b>0.87</b>	<b>0.76</b>	<b>0.77</b>
DFN	VL1824	-	3	2	-	-	-	-	-	-
PS	VL1824	1	-	-	-	-	-	-	-	-
PMP	VL1824	9	3	1	1.00	-	-	1.00	-	-
TBB	VL1824	2	-	2	-	-	-	-	-	-
TM	VL1824	5	11	10	1.00	0.92	1.00	1.00	0.92	1.00
<b>Total number</b>		<b>17</b>	<b>17</b>	<b>15</b>	<b>1.00</b>	<b>0.92</b>	<b>1.00</b>	<b>1.00</b>	<b>0.92</b>	<b>1.00</b>
TM	VL2440	10	10	10	1.00	1.00	1.00	1.00	1.00	1.00
DFN	VL2440	1	1	1	-	-	-	-	-	-
PMP	VL2440	-	-	-	-	-	-	-	-	-
<b>Total number</b>		<b>11</b>	<b>11</b>	<b>11</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>

\* The segments with \* are with less than 5 vessels and their data are not included due to the unrepresentativeness of the sample

## II. Economic indicators

The data used for the calculation of economic indicators is from questionnaires for economic statistics in 2019, 2020 and 2021 collected under the National Programme for the collection, management and use of fisheries data in regards to the Data Collection Framework (DCF) pursuant to Art. 18f. (9) of the Fisheries and Aquaculture Act. Economic variables were calculated for each segment.



## II. 1. Return on investment (ROI)

ROI is an indicator, which shows the return rate of the investments, made during the year. In 2019, the highest values of the indicator were in PMP 0006 segment, followed by segments TM 2440 and TM 1824. Values of ROI for 2020 show that the most profitable segments were PMP 0612, PMP 0006, PGP 0006 and TM 2440. In 2021, again PMP 0006 and PMP 0612 were the most profitable ones. The number of segments, for which the values of ROI are positive and greater than the low risk long term interest rate, suggesting that extraordinary profits are being generated, is highest in 2021 – 10 segments and 5 clusters (the 5 clusters combine 12 segments).

The data collection scheme used in Bulgaria is Census and the data is collected from each vessel. Clusters are not used for data collection purposes, but for the reporting of economic and social data from segments with less than 5 vessels.

The clustering is based on the aggregation of segments with a fishing technique similar to other segments.

The clustering scheme is explained below.

The segments DFN 1218, DFN 1824 and DFN 2440 are reported as DFN 1218, because the number of vessels in DFN 1824 is 2 and in DFN 2440 there is only 1 vessel.

The segments PS 0006 and PS 0612 are reported as PS 0006, because the number of vessels in PS 0612 is 3.

The segments PGP 0612 and PGP 1218 are reported as PGP 0612, because in PGP 1218 there is only 1 vessel.

The segments TBB 0612, TBB 1218 and TBB 1824 are reported as TBB 1218, because in TBB 0612 there is only 1 vessel and in TBB 1218 and TBB 1824 there are 2 vessels in each segment.

The segments PMP 1218 and PMP 1824 are reported as PMP 1218, because in PMP 1824 there is only 1 vessel.

All the segments with less than 5 vessels are marked with \*.

**Table 16.** Return on investment (ROI)

Fleet segment	Income from landings + other income	Crew costs + unpaid labour costs + fuel costs + repair & maintenance costs + other variable costs + non variable costs	Net profit	Fleet capital asset value (vessel replacement value + estimated value of fishing rights)	ROI	ROI-risk free long term interest rate <sup>1</sup>
<b>Values for 2019 (€'000)</b>						
DFN 0006	44.28	83.17	-41.22	732.38	-5.63%	-7.98%
PS 0006	3.30	3.12	0.10	10.89	0.91%	-1.44%
FPO 0006*	0.00	0.00	0.00	0.00		
HOK 0006	3.82	3.50	-0.09	47.20	-0.20%	-2.55%
PGP 0006	4.46	2.14	2.32	15.43	15.05%	12.70%
PMP 0006	659.17	172.15	484.02	231.90	208.72%	206.37%
DFN 0612	225.58	237.50	-22.01	2135.04	-1.03%	-3.38%
PS 0612*	0.00	0.00	0.00	0.00		
FPO 0612	105.32	106.81	-5.17	218.46	-2.37%	-4.72%



HOK 0612	8.37	11.58	-3.21	177.63	-1.80%	-4.15%
PGP 0612	1.63	3.81	-2.18	127.03	-1.72%	-4.07%
PMP 0612	494.27	381.12	107.50	981.80	10.95%	8.60%
TBB 0612*	0.00	0.00	0.00	0.00		
TM 0612*	0.00	0.00	0.00	0.00		
DFN 1218	117.75	84.15	23.04	634.45	3.63%	1.28%
PMP 1218	503.73	372.36	91.73	1519.79	6.04%	3.69%
TBB 1218	267.54	139.59	110.61	501.41	22.06%	19.71%
TM 1218	682.52	466.90	171.28	1916.00	8.94%	6.59%
PMP 1824	386.15	261.92	99.88	1290.67	7.74%	5.39%
PS 1824*	0.00	0.00	0.00	0.00		
TBB 1824*	0.00	0.00	0.00	0.00		
TM 1824	444.75	196.21	244.96	939.49	26.07%	23.72%
DFN 2440*	0.00	0.00	0.00	0.00		
TM 2440	1194.08	475.18	709.94	1747.07	40.64%	38.29%
<b>Fleet segment</b>	<b>Income from landings + other income</b>	<b>Crew costs + unpaid labour costs + fuel costs + repair &amp; maintenance costs + other variable costs + non variable costs</b>	<b>Net profit</b>	<b>Fleet capital asset value (vessel replacement value + estimated value of fishing rights)</b>	<b>ROI</b>	<b>ROI-risk free long term interest rate<sup>2</sup></b>
<b>Values for 2020 (€'000)</b>						
DFN 0006	105.03	103.66	-3.19	818.21	-0.39%	-2.23%
PS 0006	2.50	2.68	-0.21	10.52	-1.96%	-3.80%
FPO 0006*	0.00	0.00	0.00	0.00		
HOK 0006	0.92	3.46	-2.53	40.73	-6.22%	-8.06%
PGP 0006	8.66	3.93	4.74	14.97	31.66%	29.82%
PMP 0006	445.91	224.03	219.50	208.52	105.26%	103.42%
DFN 0612	294.57	236.92	31.59	2750.83	1.15%	-0.69%
PS 0612*	0.00	0.00	0.00	0.00		
FPO 0612	123.06	90.10	29.44	238.22	12.36%	10.52%
HOK 0612	2.07	7.22	-5.15	168.23	-3.06%	-4.90%
PGP 0612	3.23	1.03	2.20	37.77	5.83%	3.99%
PMP 0612	1305.30	299.36	998.00	891.01	112.01%	110.17%
TM 0612*	0.00	0.00	0.00	0.00		
DFN 1218	418173.10	302581.34	86985.64	1533778.54	5.67%	3.83%
HOK 1218*	0.00	0.00	0.00	0.00		
PGP 1218*	0.00	0.00	0.00	0.00		
PMP 1218	368.76	244.91	97.29	1066.14	9.13%	7.29%
TBB 1218*	0.00	0.00	0.00	0.00		
TM 1218	477.71	331.33	99.39	1519.88	6.54%	4.70%
DFN 1824*	0.00	0.00	0.00	0.00		
PMP 1824*	0.00	0.00	0.00	0.00		
TM 1824	323.55	256.95	26.19	1505.27	1.74%	-0.10%
DFN 2440*	0.00	0.00	0.00	0.00		



TM 2440	873.77	510.46	341.07	1292.14	26.40%	24.56%
Fleet segment	Income from landings + other income	Crew costs + unpaid labour costs + fuel costs + repair & maintenance costs + other variable costs + non variable costs	Net profit	Fleet capital asset value (vessel replacement value + estimated value of fishing rights)	ROI	ROI- risk free long term interest rate <sup>3</sup>
Values for 2021 (€'000)						
DFN 0006	162.20	108.57	50.21	938.54	5.35%	4.03%
DFN 0612	345.22	254.30	44.32	2607.56	1.70%	0.38%
DFN 1218	435.65	345.11	58.19	1762.75	3.30%	1.98%
DFN 1824*	0.00	0.00	0.00	0.00		
DFN 2440*	0.00	0.00	0.00	0.00		
FPO 0612	155.10	91.86	60.28	168.71	35.73%	34.41%
HOK 0006	0.52	2.16	-1.63	32.09	-5.09%	-6.41%
HOK 0612	0.95	3.50	-2.57	72.93	-3.53%	-4.85%
PGP 0006	6.00	3.24	2.50	18.70	13.37%	12.05%
PGP 0612	67.04	45.66	16.38	193.15	8.48%	7.16%
PGP 1218*	0.00	0.00	0.00	0.00		
PMP 0006	649.64	170.87	475.15	173.94	273.17%	271.85%
PMP 0612	1372.99	403.73	959.19	924.63	103.74%	102.42%
PMP 1218	618.64	331.76	238.26	1427.27	16.69%	15.37%
PMP 1824*	0.00	0.00	0.00	0.00		
PS 0006	4.69	2.06	1.77	20.38	8.71%	7.39%
PS 0612*	0.00	0.00	0.00	0.00		
TBB 0612*	0.00	0.00	0.00	0.00		
TBB 1218	214.92	119.73	95.19	403.91	23.57%	22.25%
TBB 1824*	0.00	0.00	0.00	0.00		
TM 0612	81.07	36.93	43.83	209.93	20.88%	19.56%
TM 1218	1253.54	566.14	659.44	1779.01	37.07%	35.75%
TM 1824	827.56	343.19	453.32	1951.11	23.23%	21.91%
TM 2440	2352.43	753.24	1575.62	2055.14	76.67%	75.35%

\* Segments with \* are with less than 5 vessels and the data is clustered with data of the most similar segment because of confidentiality.

Data on direct subsidies are excluded from the calculation.

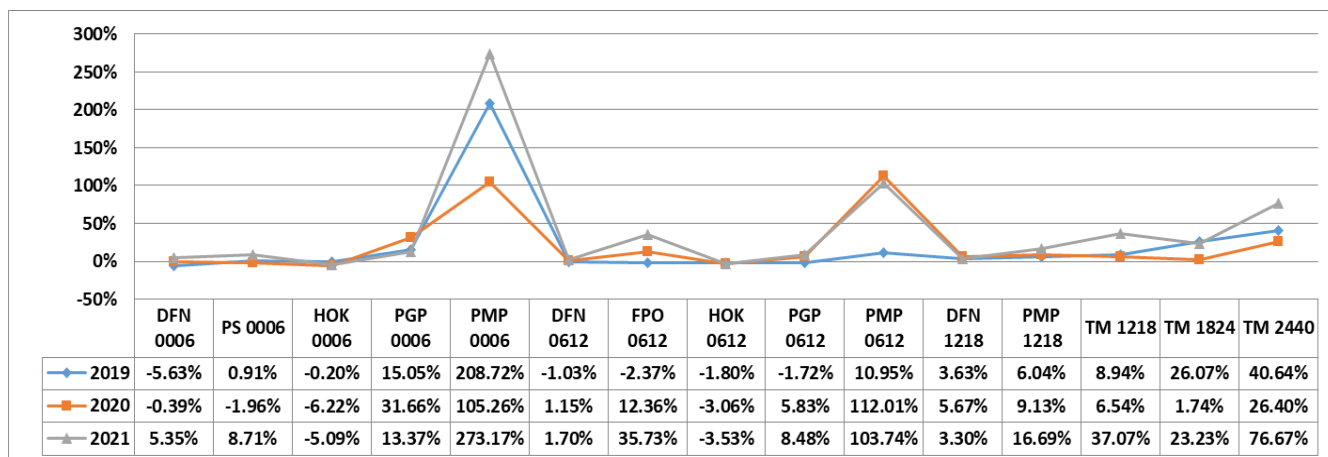
<sup>1</sup> average risk-free long-term interest rate for Bulgaria for the period 2013-2018 (source: European Central Bank) – 2.35% is used for the calculation of the indicator for 2019.

<sup>2</sup> average risk-free long-term interest rate for Bulgaria for the period 2014-2019 (source: European Central Bank) – 1.84% is used for the calculation of the indicator for 2020.

<sup>3</sup> average risk-free long-term interest rate for Bulgaria for the period 2015-2020 (source: European Central Bank) – 1.32% is used for the calculation of the indicator for 2021.

**Figure 9.** Return on investment (ROI) for 2019, 2020 and 2021.





**Figure 9** shows the ROI values for 2019, 2020 and 2021. All the values are calculated in accordance with the 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 (COM (2014) 545 final). Data on subsidies were excluded from the calculation. Significant fluctuations of ROI indicator are observed for the segments PMP 0006, PMP 0612, FPO 0612, PGP 0006, TM 1218, TM 1824 and TM 2440.

In both segments with the largest number of fishing vessels (DFN 0006 and DFN 0612), the rate of return on investment increased a bit in 2021, compared to the previous two years. Return on investments was a negative value in 6 segments in 2019, 4 segments in 2020 and 2 segments in 2021.

The ROI values for the other segments show overcapitalisation, which in the long run also makes them economically ineffective.

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

For 2019-2021 the indicator CR/BER is calculated in the short and long term (**Table 17**).

In the short term, in 2019 the value of the indicator in 11 of the segments representing 28% of the active fleet of the Republic of Bulgaria has a indicator value greater than 1. In these segments, sufficient income is generated to cover variable, fixed and capital costs and are considered profitable, with potential undercapitalisation. For 3 segments (HOK 0006, DFN 0612 and FPO 0612), this ratio is positive but below 1. In these segments, insufficient income is generated to cover all costs and categorized as non-profitable with a potential overcapitalisation. In view of the long-term profitability of the segments, the calculation also includes the potential loss of benefits - calculated as a product of the value of the capital assets and the average interest rate on long-term low risk investments for Bulgaria for the period 2013-2018. They are added to the fixed costs. The lowest value of the CR/BER<sup>1</sup> ratio in 2019 is the DFN 0006 segment, followed by PGP 0612. These results show that investing in these segments is with high risk in the long-term.

The 2020 results show that 11 of the segments are profitable and able to cover their costs. The value of the CR/BER indicator for these segments is higher than 1. The highest indicator value is observed for segments PMP 0612, PMP 0006, TM 2440. Calculations are also made for the CR/BER ratio for 2020





with loss of benefits included, which is calculated as a product of the value of the capital assets and the average interest rate on long-term low risk investments for Bulgaria for the period 2014-2019. In long-term, the indicator has a positive value of over 1 in 9 of the segments, including 26% (315 vessels) of the fleet. For 4 segments (DFN 0006, PS 0006, DFN 0612 and TM 1824), this ratio is positive but below 1 and with a negative value for the other 2 segments, which are unprofitable in short-term and in long-term.

In the short term, in 2021 the value of the indicator in 13 of the segments representing 28% of the active fleet of the Republic of Bulgaria has a indicator value greater than 1. In these segments, sufficient income is generated to cover variable, fixed and capital costs and are considered profitable, with potential undercapitalisation. For 3 segments (HOK 0006, DFN 0612 and FPO 0612), this ratio is positive but below 1. In these segments, insufficient income is generated to cover all costs and categorized as non-profitable with a potential overcapitalisation. In view of the long-term profitability of the segments, the calculation also includes the potential loss of benefits - calculated as a product of the value of the capital assets and the average interest rate on long-term low risk investments for Bulgaria for the period 2013-2018. They are added to the fixed costs. The lowest value of the CR/BER1 ratio in 2019 is the DFN 0006 segment, followed by PGP 0612. These results show that investing in these segments is with high risk in the long-term.

Both in the short and long term, in 2021 the value of the indicator in 10 segments and in the 5 clusters, which include 12 segments, representing 97% of the active fleet of the Republic of Bulgaria, is greater than 1. The income generated by these segments is sufficient to cover variable, fixed and capital costs and the segments are considered profitable, with potential undercapitalisation. Only for two segments (HOK 0006 and HOK 0612) the ratio between current revenues and break-even revenue is a negative number. These results show that investing in these segments is risky in the long term.

**Table 17.** Ratio between current revenue and break-even revenue 2019, 2020 and 2021 (€'000)

2019 Fleet segment	Current revenue (CR) = Income from landings + other income	Fixed costs = Non variable costs + depreciation	Fixed costs <sup>1</sup> = Non variable costs + depreciation + opportunity cost of capital	Variable costs = Crew costs + Unpaid labour costs + Energy costs + Repair & maintenance costs + Other variable costs	BER = (Fixed Costs) / (1- [Variable costs / Current Revenue])	CR / BER	CR / BER <sup>1</sup>
DFN 0006	44.28	21.81	39.02	83.17	-49.75	-0.89	-0.50
PS 0006	3.30	0.16	0.42	3.12	2.06	1.60	0.63
FPO 0006*	0.00	0.00	0.00	0.00	0.00		
HOK 0006	3.82	1.65	2.76	3.50	4.05	0.94	0.56
PGP 0006	4.46	0.14	0.50	2.14	0.25	17.82	4.91
PMP 0006	659.17	14.32	19.77	172.15	18.95	34.79	25.20
DFN 0612	225.58	60.83	111.00	237.50	353.53	0.64	0.35
PS 0612*	0.00	0.00	0.00	0.00	0.00		
FPO 0612	105.32	11.16	16.30	106.81	196.25	0.54	0.37
HOK 0612	8.37	2.65	6.83	11.58	-40.20	-0.21	-0.08



PGP 0612	1.63	1.19	4.18	3.81	-1.95	-0.83	-0.24
PMP 0612	494.27	28.60	51.67	381.12	103.86	4.76	2.63
TBB 0612*	0.00	0.00	0.00	0.00	0.00		
TM 0612*	0.00	0.00	0.00	0.00	0.00		
DFN 1218	117.75	17.94	32.85	84.15	51.54	2.28	1.25
PMP 1218	503.73	51.28	87.00	372.36	180.63	2.79	1.64
TBB 1218	267.54	21.58	33.37	139.59	43.68	6.12	3.96
TM 1218	682.52	61.28	106.31	466.90	179.85	3.79	2.19
PMP 1824	386.15	27.58	57.91	261.92	83.56	4.62	2.20
PS 1824*	0.00	0.00	0.00	0.00	0.00		
TBB 1824*	0.00	0.00	0.00	0.00	0.00		
TM 1824	444.75	10.31	32.38	196.21	17.96	24.77	7.88
DFN 2440*	0.00	0.00	0.00	0.00	0.00		
TM 2440	1194.08	21.48	62.53	475.18	35.06	34.06	11.70
<b>2020 Fleet segment</b>	<b>Current revenue (CR) = Income from landings + other income</b>	<b>Fixed costs = Non variable costs + depreciation</b>	<b>Fixed costs<sup>1</sup> = Non variable costs + depreciation + opportunity cost of capital</b>	<b>Variable costs = Crew costs + Unpaid labour costs + Energy costs + Repair &amp; maintenance costs + Other variable costs</b>	<b>BER = (Fixed Costs) / (1- [Variable costs / Current Revenue])</b>	<b>CR / BER</b>	<b>CR / BER<sup>1</sup></b>
DFN 0006	105.03	23.62	38.68	84.60	121.45	0.86	0.53
PS 0006	2.50	0.32	0.51	2.38	7.01	0.36	0.22
FPO 0006*	0.00	0.00	0.00	0.00	0.00		
HOK 0006	0.92	1.62	2.37	1.84	-1.63	-0.57	-0.39
PGP 0006	8.66	0.95	1.23	2.98	1.45	5.98	4.64
PMP 0006	445.91	12.63	16.47	213.78	24.26	18.38	14.10
DFN 0612	294.57	65.43	116.04	197.55	198.65	1.48	0.84
PS 0612*	0.00	0.00	0.00	0.00	0.00		
FPO 0612	123.06	10.22	14.60	83.41	31.71	3.88	2.72
HOK 0612	2.07	2.42	5.51	4.80	-1.84	-1.13	-0.50
PGP 0612	3.23	0.36	1.06	0.66	0.46	7.07	2.43
PMP 0612	1305.30	29.45	45.84	277.86	37.41	34.89	22.41
TM 0612*	0.00	0.00	0.00	0.00	0.00		
DFN 1218	418173.10	47.93	76.15	283.26	148.56	2.81	1.77
HOK 1218*	0.00	0.00	0.00	0.00	0.00		
PGP 1218*	0.00	0.00	0.00	0.00	0.00		
PMP 1218	368.76	38.97	58.59	232.50	105.47	3.50	2.33
TBB 1218*	0.00	0.00	0.00	0.00	0.00		
TM 1218	477.71	60.31	88.27	318.01	180.39	2.65	1.81
DFN 1824*	0.00	0.00	0.00	0.00	0.00		



PMP 1824*	0.00	0.00	0.00	0.00	0.00		
TM 1824	323.55	61.03	88.73	236.32	226.41	1.43	0.98
DFN 2440*	0.00	0.00	0.00	0.00	0.00		
TM 2440	873.77	24.14	47.91	508.57	57.75	15.13	7.62
<b>2021 Fleet segment</b>	<b>Current revenue (CR) = Income from landings + other income</b>	<b>Fixed costs = Non variable costs + depreciation</b>	<b>Fixed costs<sup>1</sup> = Non variable costs + depreciation + opportunity cost of capital</b>	<b>Variable costs = Crew costs + Unpaid labour costs + Energy costs + Repair &amp; maintenance costs + Other variable costs</b>	<b>BER = (Fixed Costs) / (1- [Variable costs / Current Revenue])</b>	<b>CR / BER</b>	<b>CR / BER<sup>1</sup></b>
DFN 0006	162.20	29.62	42.01	82.37	60.18	2.70	1.90
DFN 0612	345.22	84.79	119.21	216.10	226.71	1.52	1.08
DFN 1218	435.65	45.87	69.14	331.58	192.04	2.27	1.51
DFN 1824*	0.00	0.00	0.00	0.00	0.00		
DFN 2440*	0.00	0.00	0.00	0.00	0.00		
FPO 0612	155.10	10.69	12.92	84.12	23.37	6.64	5.49
HOK 0006	0.52	0.81	1.24	1.34	-0.51	-1.01	-0.66
HOK 0612	0.95	1.29	2.26	2.23	-0.96	-0.99	-0.57
PGP 0006	6.00	0.62	0.87	2.88	1.20	5.01	3.59
PGP 0612	67.04	8.40	10.95	42.26	22.72	2.95	2.26
PGP 1218*	0.00	0.00	0.00	0.00	0.00		
PMP 0006	649.64	16.39	18.69	158.11	21.66	29.99	26.30
PMP 0612	1372.99	35.91	48.12	377.89	49.55	27.71	20.68
PMP 1218	618.64	61.29	80.13	319.09	126.57	4.89	3.74
PMP 1824*	0.00	0.00	0.00	0.00	0.00		
PS 0006	4.69	1.05	1.32	1.86	1.75	2.69	2.14
PS 0612*	0.00	0.00	0.00	0.00	0.00		
TBB 0612*	0.00	0.00	0.00	0.00	0.00		
TBB 1218	214.92	7.03	12.36	112.70	14.78	14.54	8.27
TBB 1824*	0.00	0.00	0.00	0.00	0.00		
TM 0612	81.07	4.35	7.12	32.89	7.33	11.07	6.76
TM 1218	1253.54	52.54	76.02	541.56	92.50	13.55	9.37
TM 1824	827.56	47.42	73.18	326.82	78.38	10.56	6.84
TM 2440	2352.43	37.33	64.46	739.48	54.45	43.20	25.02

Data on direct subsidies are excluded from the calculation.

<sup>1</sup> adding opportunity costs to fixed costs.

\* Segments with \* are with less than 5 vessels and the data is clustered with data of the most similar segment because of confidentiality.

Indicator values for CR / BER for the period 2019-2021 are presented in **Table 18**.



**Table 18.** Ratio between current revenue and break-even revenue (CR/BER and CR/BER<sup>1</sup>) for 2019, 2020 and 2021

<b>Ratio between current revenue and break-even revenue (CR/BER) for 2019</b>															
Segment	DFN 0006	PS 0006	HOK 0006	PGP 0006	PMP 0006	DFN 0612	FPO 0612	HOK 0612	PGP 0612	PMP 0612	DFN 1218	PMP 1218	TM 1218	TM 1824	TM 2440
CR/BER	-0.89	1.60	0.94	17.82	34.79	0.64	0.54	-0.21	-0.83	4.76	2.28	2.79	3.79	24.77	34.06
CR/BER <sup>1</sup>	-0.50	0.63	0.56	4.91	25.20	0.35	0.37	-0.08	-0.24	2.63	1.25	1.64	2.19	7.88	11.70
<b>Ratio between current revenue and break-even revenue (CR/BER) for 2020</b>															
Segment	DFN 0006	PS 0006	HOK 0006	PGP 0006	PMP 0006	DFN 0612	FPO 0612	HOK 0612	PGP 0612	PMP 0612	DFN 1218	PMP 1218	TM 1218	TM 1824	TM 2440
CR/BER	0.86	0.36	-0.57	5.98	18.38	1.48	3.88	-1.13	7.07	34.89	2.81	3.50	2.65	1.43	15.13
CR/BER <sup>1</sup>	0.53	0.22	-0.39	4.64	14.10	0.84	2.72	-0.50	2.43	22.41	1.77	2.33	1.81	0.98	7.62
<b>Ratio between current revenue and break-even revenue (CR/BER) for 2021</b>															
Segment	DFN 0006	PS 0006	HOK 0006	PGP 0006	PMP 0006	DFN 0612	FPO 0612	HOK 0612	PGP 0612	PMP 0612	DFN 1218	PMP 1218	TM 1218	TM 1824	TM 2440
CR/BER	2.70	2.69	-1.01	5.01	29.99	1.52	6.64	-0.99	2.95	27.71	2.27	4.89	13.55	10.56	43.20
CR/BER <sup>1</sup>	1.90	2.14	-0.66	3.59	26.30	1.08	5.49	-0.57	2.26	20.68	1.51	3.74	9.37	6.84	25.02

**Table 19.** Direct subsidies for the period 2014 - 2021 (€'000)

<b>Direct subsidies for 2014, 2015, 2016, 2017, 2018, 2019, 2020 and 2021 (€'000).</b>						
Fleet segment	2014	2015, 2016, 2017	2018	2019	2020	2021
DFN 0006	0,1	0	0	0	0,15	1,84
DFN 0612	0	0	18,28	0	9,18	0,12
DFN 1218	0	0	0	0	109,55	0
DFN 1824	0	0	0	0	20,62	0
DFN 2440	0	0	0	0	21,07	0
HOK 1218	0	0	0	0	15,33	0
PMP 0612	0,26	0	0	0	7,84	0
PMP 1218	0	0	0	0	72,11	41,69
PMP 1824	0	0	0	0	55,72	0
PGP 0006	0,26	0	0	0	0	0,1
PGP 1218	13	0	0	0	0	0
TM 1218	0	0	0	0	126,05	0
TM 1824	0	0	0	0	67,70	16,06
TM 2440	0	0	0	0	167,19	0



### ***III. Biological indicators***

#### ***III.1. Sustainable harvest indicator***

The Bulgarian marine fisheries are performed in the Black Sea. From the catches of fish, only the turbot (*Psetta maxima*) and sprat (*Sprattus sprattus*) are species under quotas and are included in the National Programme for the collection, management and use of fisheries data under the Data Collection Framework (DCF). The applied quotas are based on precautionary advice because it is not possible to calculate the biomass for the whole basin of the Black Sea. During 2021 the allocated national quota was 87.825 t for turbot, including additional quota and sprat – 8 032.5 t (Council Regulation (EU) 2021/90 of 28 January 2021 fixing for 2021 the fishing opportunities for certain fish stocks and groups of fish stocks applicable in the Mediterranean and Black Seas).

Four research surveys were conducted in the Bulgarian aquatory in Black sea – two demersal and two pelagic during 2021.

The biological indicator Sustainable harvest indicator reflects the magnitude in which a fleet segment depends on the stocks object to overfishing. In the current context “overfished catch” means that fishing of the stocks exceeds the value  $F_{msy}$ , i.e. percentage of death from fishing corresponds to maximum sustainable catch. The calculation of the Sustainable indicator is done following the 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 (COM (2014) 545 final) and landings data reported under DCF.  $F$  and  $F_{msy}$  data, which was used for the calculations for 2020 and 2021, was taken from the Seventh meeting of the Subregional Group on Stock Assessment in the Black Sea (SGSABS) and the validated stock assessment forms (SAFs) available at <https://www.fao.org/gfcm/data/safs/en/>. The results for the estimated value of the Sustainable harvest indicator are shown in **Table 20**. For 22 of the segments, the value of the indicator for two consecutive years is above 1, which may be a sign of imbalance. These segments realized income, relying on fishing opportunities which are structurally set at higher levels than the levels of exploitation corresponding to the maximum sustainable catch. In 11 of these 22 segments there is an increase in the value of the indicator for 2021, and in 11 segments, there is a decrease. There are no segments for which the indicator was below 1 in 2020 or 2021. In two of the segments in 2020 and two in 2021 there were no vessels, so the indicator is marked as “-” in the table.

**Table 20.** Indicator for sustainable harvest for 2020 and 2021



<b>Segment</b>	<b>Indicator for sustainable harvest for 2020</b>	<b>Indicator for sustainable harvest for 2021</b>
<b>DFN VL0006</b>	<b>2.442</b>	<b>2.745</b>
<b>DFN VL0612</b>	<b>1.899</b>	<b>1.754</b>
<b>DFN VL1218</b>	<b>1.441</b>	<b>1.471</b>
<b>DFN VL1824</b>	<b>3.722</b>	<b>2.017</b>
<b>DFN VL2440</b>	<b>1.282</b>	<b>2.629</b>
<b>FPO VL0006</b>	<b>1.625</b>	<b>-</b>
<b>FPO VL0612</b>	<b>1.568</b>	<b>2.104</b>
<b>HOK VL0006</b>	<b>8.405</b>	<b>5.276</b>
<b>HOK VL0612</b>	<b>8.095</b>	<b>7.536</b>
<b>HOK VL1218</b>	<b>3.197</b>	<b>-</b>
<b>PGP VL0006</b>	<b>2.946</b>	<b>1.220</b>
<b>PGP VL0612</b>	<b>1.238</b>	<b>1.195</b>
<b>PGP VL1218</b>	<b>1.314</b>	<b>1.279</b>
<b>PMP VL0006</b>	<b>1.201</b>	<b>1.201</b>
<b>PMP VL0612</b>	<b>1.209</b>	<b>1.245</b>
<b>PMP VL1218</b>	<b>1.385</b>	<b>1.234</b>
<b>PMP VL1824</b>	<b>1.434</b>	<b>2.551</b>
<b>PS VL0006</b>	<b>1.349</b>	<b>1.155</b>
<b>PS VL0612</b>	<b>2.202</b>	<b>2.449</b>
<b>TBB VL0612</b>	<b>-</b>	<b>1.200</b>
<b>TBB VL1218</b>	<b>1.206</b>	<b>1.202</b>
<b>TBB VL1824</b>	<b>-</b>	<b>1.478</b>
<b>TM VL0612</b>	<b>2.168</b>	<b>1.661</b>
<b>TM VL1218</b>	<b>1.184</b>	<b>1.118</b>
<b>TM VL1824</b>	<b>1.134</b>	<b>1.180</b>
<b>TM VL2440</b>	<b>1.009</b>	<b>1.024</b>

### *III.2. Stocks-at-risk indicator*

The stock-at-risk indicator was calculated for 2020 and 2021, according to the 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.

In 2020, in 1 segment the turbot landings make up more than 10% of its catches and 3 segments make up more than 10% of piked dogfish catch from their catches. The percentage of the catches of turbot and piked dogfish for each fleet segment was also done to assess if any of them is fishing more than 10% of the catches of the stock. The stocks-at-risk indicator was with value 1 for six segments in 2020 and with value 2 for two segments.



**Table 21.** Stock-at-risk indicator calculations for 2020.

2020	% of TUR from all catches of the segment.	% of DGS from all catches of the segment.	% of TUR catches by the segment from the catches of the whole fleet	% of DGS catches by the segment from the catches of the whole fleet	SAR indicator
DFN VL0006	0.7	0.2	0.7	0.3	0
DFN VL0612	5.9	2.7	13.7	8.9	1
DFN VL1218	4.7	1.7	24.9	12.6	2
DFN VL1824	3.4	18.6	5.4	42.0	1
DFN VL2440	9.9	0.5	3.1	0.2	0
FPO VL0612	0.0	0.0	0.0	0.0	0
HOK VL0006	0.0	47.2	0.0	0.8	1
HOK VL0612	5.8	29.8	0.1	1.0	1
PGP VL0006	0.0	0.0	0.0	0.0	0
PGP VL0612	0.0	0.0	0.0	0.0	0
PGP VL1218	22.8	0.0	0.8	0.0	1
PMP VL0006	0.0	0.0	0.3	0.0	0
PMP VL0612	0.2	0.0	3.1	0.5	0
PMP VL1218	1.3	1.4	13.7	21.6	2
PMP VL1824	2.1	1.6	7.6	8.4	0
PS VL0006	0.0	0.0	0.0	0.0	0
PS VL0612	0.0	0.0	0.0	0.0	0
TBB VL1218	0.4	0.0	1.0	0.0	0
TM VL0612	4.6	0.0	1.7	0.0	0
TM VL1218	1.3	0.1	14.4	2.0	1
TM VL1824	0.8	0.1	6.0	1.6	0
TM VL2440	0.1	0.0	3.5	0.1	0

In 2021, in 1 segment the turbot landings make up more than 10% of its catches and 2 segments make up more than 10% of piked dogfish catch from their catches. The percentage of the catches of turbot and piked dogfish for each fleet segment was also done to assess if any of them is fishing more than 10% of the catches of the stock. Five of the segments caught more than 10% of the TUR catches for the whole fleet and four of the segments caught more than 10% of the DGS. The stocks-at-risk indicator was with value 1 for six segments in 2021 and with value 2 for three segments.

**Table 22.** Stock-at-risk indicator calculations for 2021.



2021	% of TUR from all catches of the segment.	% of DGS from all catches of the segment.	% of TUR catches by the segment from the catches of the whole fleet	% of DGS catches by the segment from the catches of the whole fleet	SAR indicator
DFN VL0006	1.1	0.1	1.3	0.6	0
DFN VL0612	5.9	1.5	14.1	12.5	2
DFN VL1218	3.7	2.4	16.0	37.2	2
DFN VL1824	5.6	6.1	4.0	15.6	1
DFN VL2440	9.5	0.0	1.9	0.0	0
FPO VL0612	0.0	0.0	0.0	0.0	0
HOK VL0006	0.0	16.0	0.0	0.2	1
HOK VL0612	0.0	27.4	0.0	0.7	1
PGP VL0006	0.0	0.0	0.0	0.0	0
PGP VL0612	2.4	0.0	0.5	0.0	0
PGP VL1218	1.5	0.3	1.2	0.8	0
PMP VL0006	0.0	0.0	0.0	0.0	0
PMP VL0612	0.3	0.1	3.7	5.9	0
PMP VL1218	1.5	0.1	17.8	5.4	1
PMP VL1824	12.3	0.0	1.5	0.0	1
PS VL0006	0.0	0.0	0.0	0.0	0
PS VL0612	0.0	0.0	0.0	0.0	0
TBB VL0612	0.0	0.0	0.0	0.0	0
TBB VL1218	0.5	0.0	1.3	0.2	0
TBB VL1824	3.2	0.0	2.0	0.0	0
TM VL0612	4.5	0.3	2.7	0.7	0
TM VL1218	0.8	0.2	17.7	16.3	2
TM VL1824	0.9	0.1	11.0	3.9	1
TM VL2440	0.1	0.0	3.4	0.0	0

In three of the segments (DFN VL1824, HOK VL0006 and HOK VL0612) the value of SAR is 1 for both years. In DFN VL1218 the value is 2 for 2020 and 2021. In two segments (DFN VL0612 and TM VL1218) increased from 1 in 2020 to 2 in 2021, while in one segment (PMP VL1218) the value decreased from 2 to 1. In 1 segment (PGP VL1218) the value was 1 in 2020 and 0 in 2021. In PMP VL1824 and TM VL1824 the SAR indicator was 0 in 2020 and 1 in 2021.

**Table 23.** Comparison between stock-at-risk indicator in 2020 and 2021





Segment	SAR 2020	SAR 2021
DFN VL0612	1	2
DFN VL1218	2	2
DFN VL1824	1	1
HOK VL0006	1	1
HOK VL0612	1	1
PGP VL1218	1	0
PMP VL1218	2	1
PMP VL1824	0	1
TM VL1218	1	2
TM VL1824	0	1

### F.3.3. Comparison of indicators

The analysis is based on the overall assessment and comparison of technical, economic and biological indicators for 2019, 2020 and 2021 as follows:

Indicator	Definition	Level 1 - „Green“	Level 2 - „Yellow“	Level 3 - „Red“
<b>Technical</b>	Average effort/Maximum effort per vessel	>0.9	0.7-0.9	<0.7
<b>Biological 1</b>	$F_{estimated}/F_{target}$	<1	>1	>>1
<b>Biological 2</b>	Catch/Biomass	As defined by species/stocks	As defined by species/stocks	As defined by species/stocks
<b>Economical 1</b>	ROI (Return on Investment)	ROI>target point	0<ROI<target point	ROI<0
<b>Economical 2</b>	CR/BER Current Revenues/Break-even revenues	CR/BER >1	CR/BER Approximately=1	CR/BER <1



2019	Métier		Technical indicator	Biological indicators		Economic indicators		Conclusion
	VL			Bio 1	Bio 2	ROI 1	CR/BER 2	
	DFN	VL0006						Level 2
PS	VL0006						Level 2	
PMP	VL0006						Level 2	
HOK	VL0006						Level 2	
PGP	VL0006						Level 1	
DFN	VL0612						Level 2	
FPO	VL0612						Level 2	
HOK	VL0612						Level 3	
PGP	VL0612						Level 2	
PMP	VL0612						Level 2	
DFN	VL1218						Level 1	
PMP	VL1218						Level 1	
TBB	VL1218						Level 1	
TM	VL1218						Level 1	
PMP	VL1824						Level 1	
TM	VL1824						Level 2	
TM	VL2440						Level 1	

2020	Métier		Technical indkator	Biological indicators		Economic indicators		Conclusion
	VL			Bio 1	Bio 2	ROI 1	CR/BER 2	
	DFN	VL0006						Level 2
PS	VL0006						Level 2	
PMP	VL0006						Level 2	
HOK	VL0006						Level 2	
PGP	VL0006						Level 2	
DFN	VL0612						Level 2	
FPO	VL0612						Level 2	
HOK	VL0612						Level 3	
PGP	VL0612						Level 2	
PMP	VL0612						Level 2	
DFN	VL1218						Level 2	
PMP	VL1218						Level 2	
DFN	VL1218						Level 2	
PMP	VL1218						Level 2	
TM	VL1218						Level 2	
TM	VL1824						Level 2	
TM	VL2440						Level 1	

2021	Métier		Technical indicator	Biological indicators		Economic indicators		Conclusion
	VL			Bio 1	Bio 2	ROI 1	CR/BER 2	
	DFN	VL0006						Level 2
PS	VL0006						Level 1	
PMP	VL0006						Level 2	
HOK	VL0006						Level 2	
PGP	VL0006						Level 1	
DFN	VL0612						Level 2	
FPO	VL0612						Level 2	
HOK	VL0612						Level 2	
PGP	VL0612						Level 1	
PMP	VL0612						Level 2	
TM	VL0612						Level 1	
DFN	VL1218						Level 2	
PMP	VL1218						Level 2	
TM	VL1218						Level 2	
TM	VL1824						Level 1	
TM	VL2440						Level 1	

As can be seen from the comparison, an imbalance has been identified for 10 of the fleet segments and an action plan for their adaptation has been prepared.

