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THE STURGEON BY-CATCH WHILE TRAWL FISHING IN THE NORTH-WESTERN PART OF THE BLACK SEA

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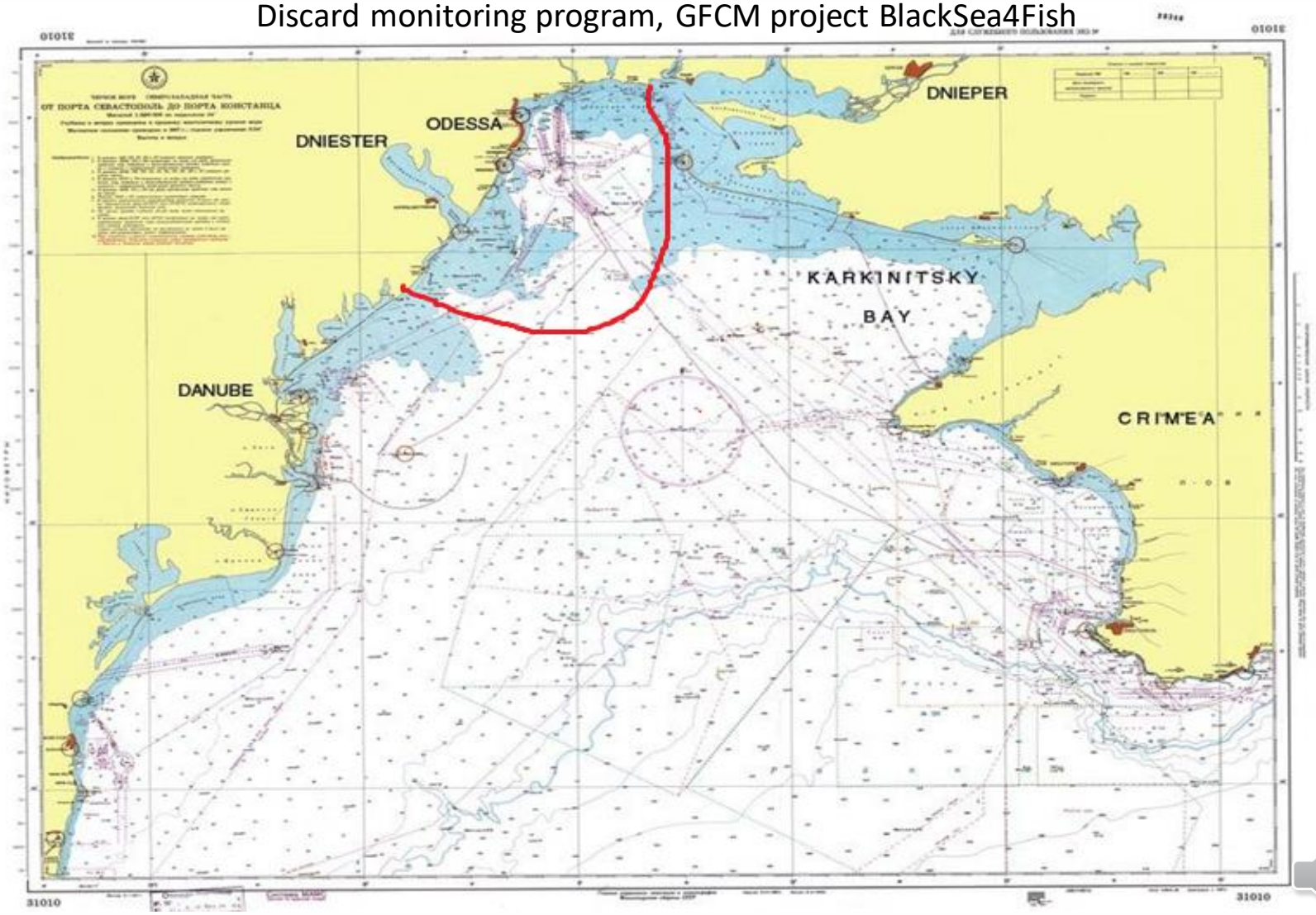
Sprat trawling area in the North-Western part of the Black Sea in 2018-2021

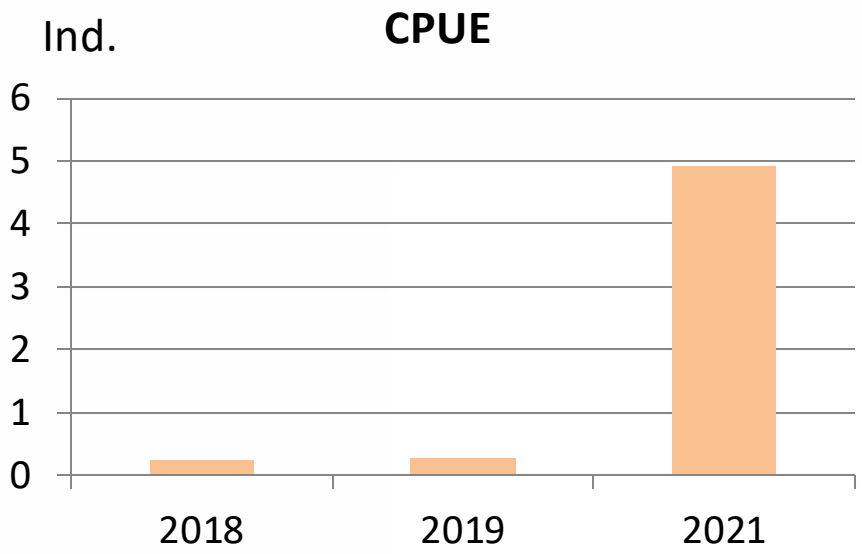
Discard monitoring program, GFCM project BlackSea4Fish



Fishing efforts and by-catch of sturgeons in the NWBS in 2018, 2019 and 2021

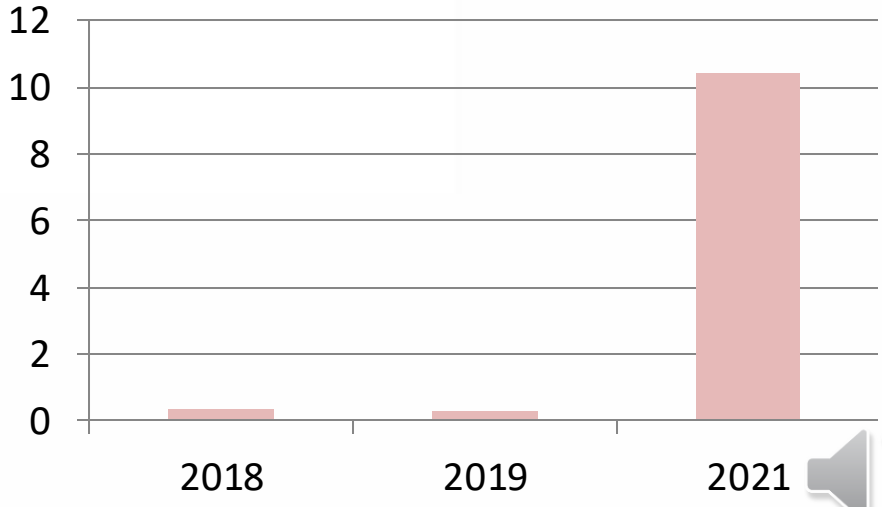
Year	Month	N of trawl operations	Sprat catch, t	A. stellatus		A. gueldenstaedtii		H. huso	
				n	m, kg	n	m, kg	**n**	m, kg
2018	VIII-XI	109	165	**26**	42	**3**	15	-	-
2019	IV-XI	174	113	**48**	29	**1**	0.5		
2021	VIII-IX	59	91	**272**	502	**8**	53	**10**	394

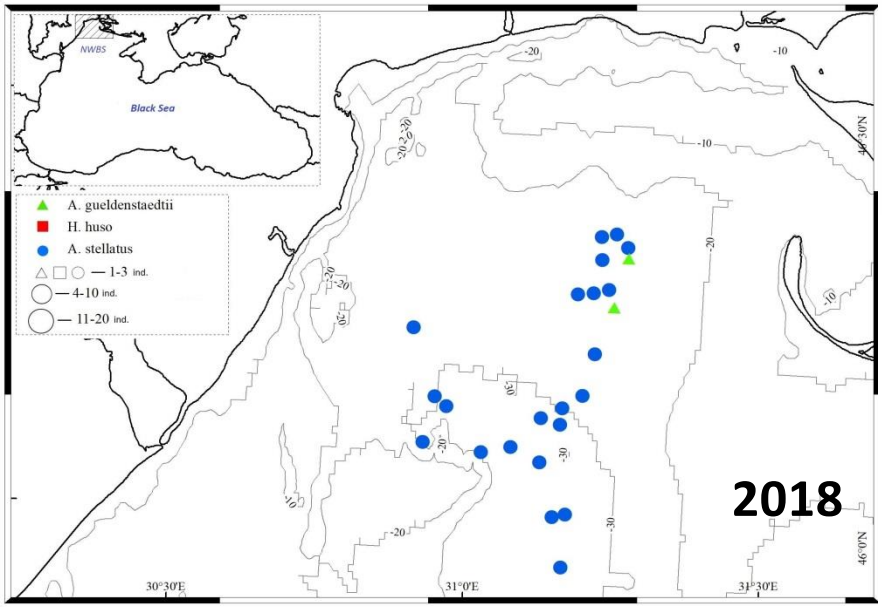
Sturgeons by-caught by mid water trawls

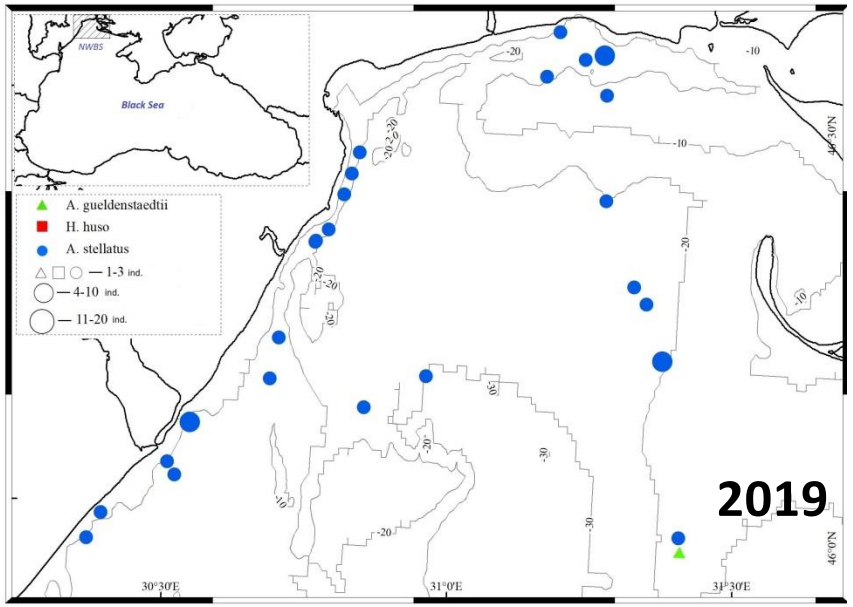


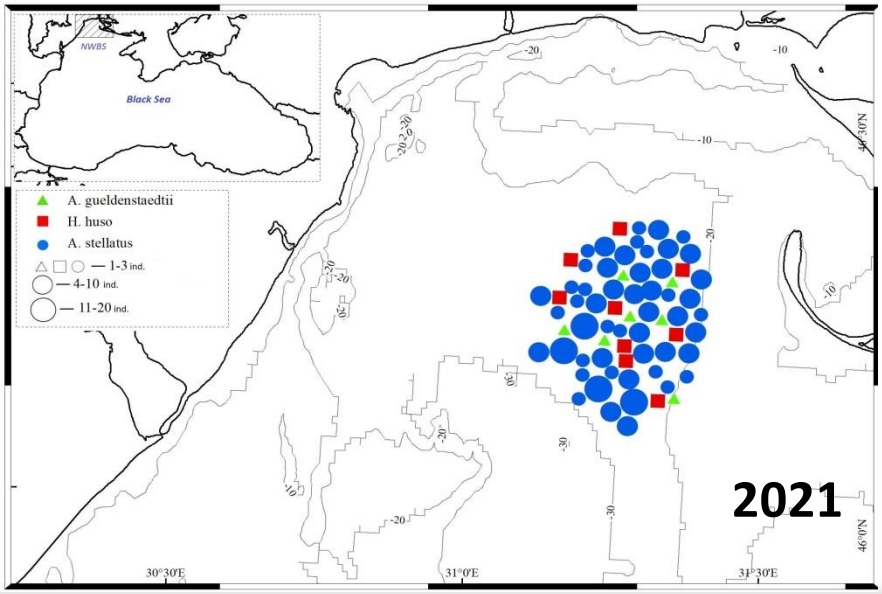
CPUE,
the number of sturgeons
caught per one trawl operation

Sturgeon by-catch,
kg per 1 ton of sprat









Distribution of sturgeons by-catch while trawl fishing in the North Western part of the Black Sea in 2018, 2019 and 2021

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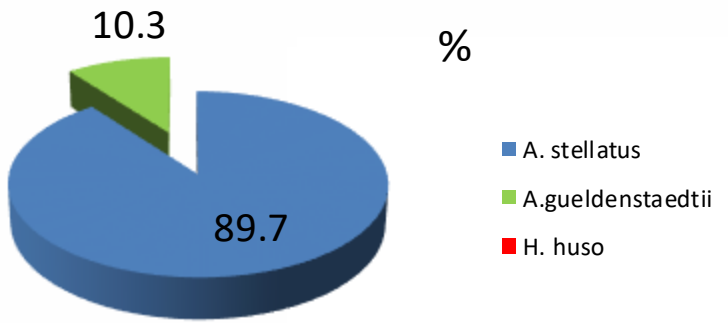
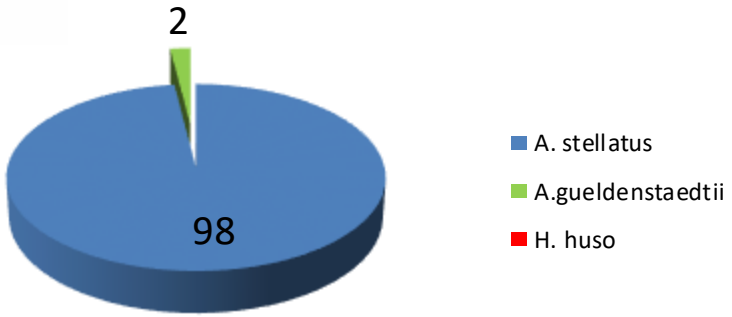
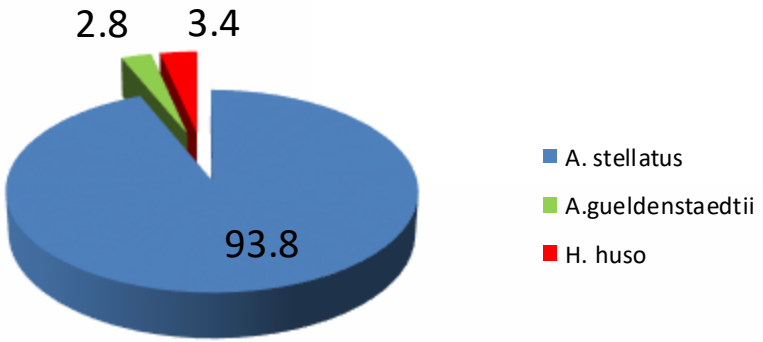
2018



2019



2021



Species composition of sturgeon by-catch in the NW Black Sea in 2018, 2019 and 2021

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Size-weight characteristics of sturgeons in trawl by-catch

Year	A. stellatus		A. gueldenstaedtii		H. huso	
	l, cm	m, kg	l, cm	m, kg	l, cm	m, kg
2018	32 - 102	0.2 – 4.7	51 - 102	1.2 – 9.6	-	-
2019	32 - 90	0.2 – 3.1	42	0.5	-	-
2021	40 - 109	0.3 – 6.3	60 - 112	2.2– 13.0	98 - 256	9 -150

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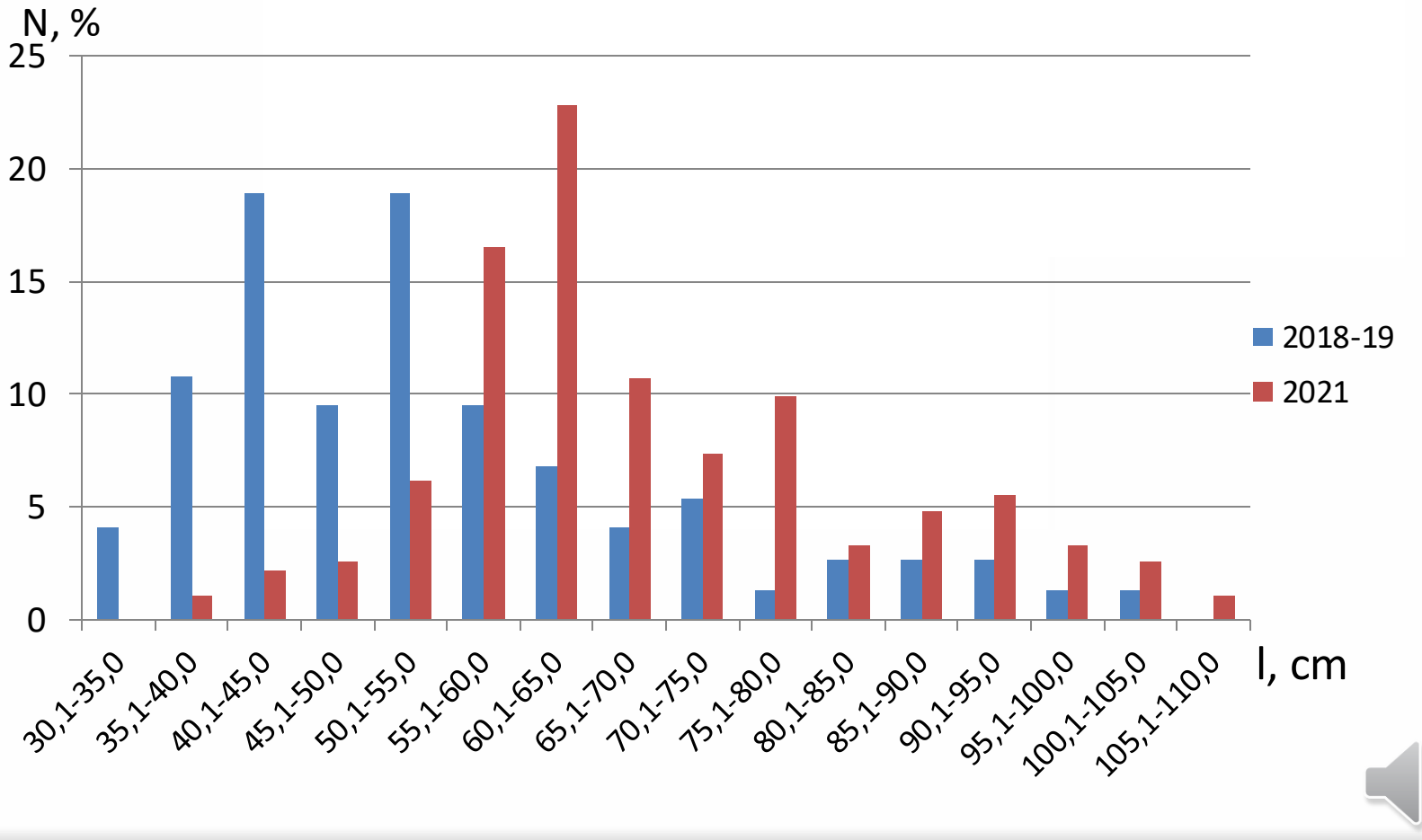
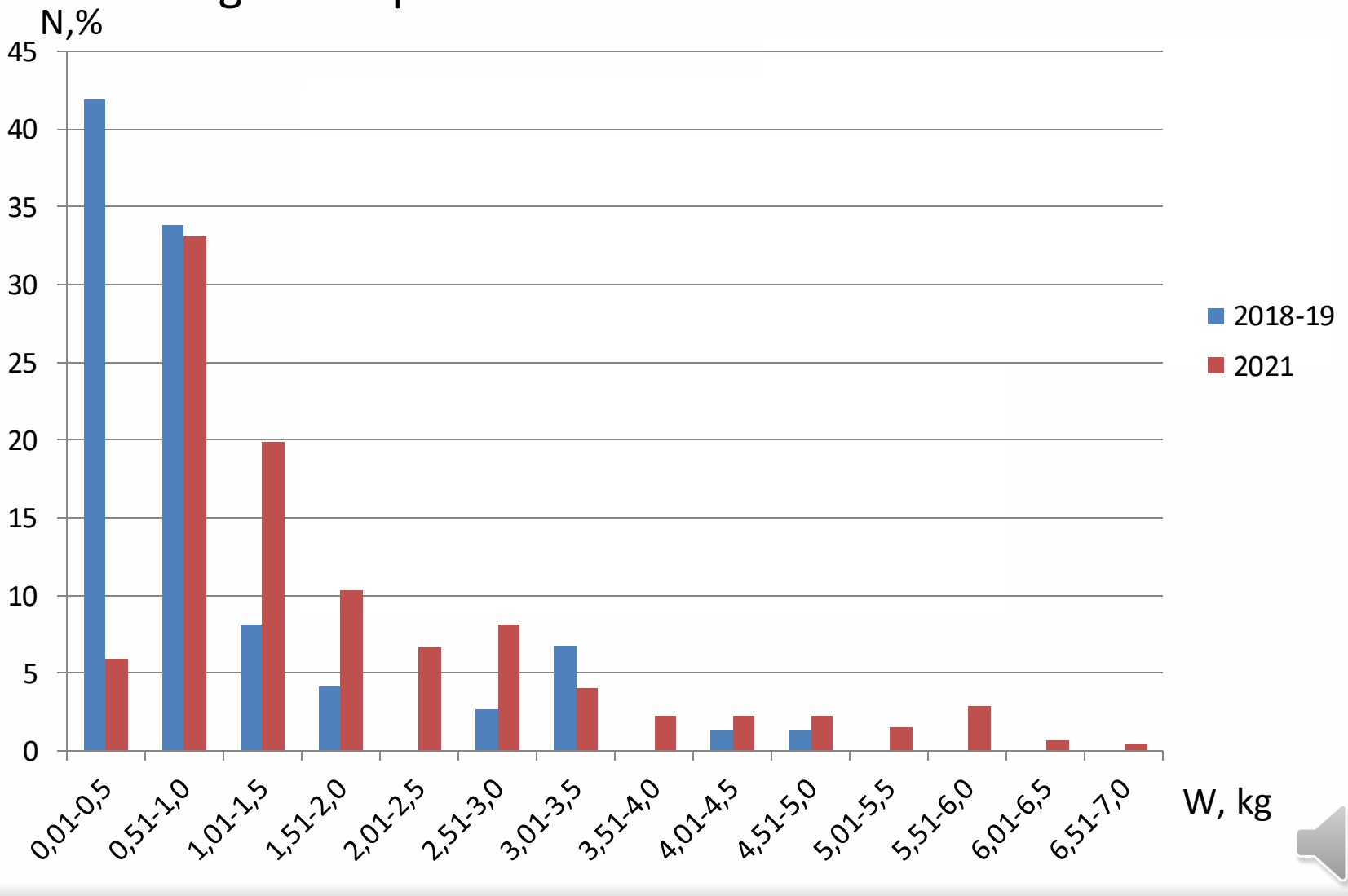
The size composition of *A. stellatus* in 2018-19 and 2021



The weight composition of *A. stellatus* in 2018-19 and 2021



Changes in the average size and weight parameters of stellate sturgeon in by-catch in 2018-2019 and 2021

YY	2018-2019	2021
Length(l), cm	54.6	69.7
Weight, kg	0.96	1.85

Based on the growth rate of the stellate sturgeon body length, the generations of 2016 and 2017 were the most numerous. These are the years when, according to monitoring data in the Danube River, the natural spawning of stellate sturgeon was relatively successful.

The average body length of stellate sturgeon in the 2021 sample increased by 15 cm compared to the 2018-2019 samples, and the average weight of individuals almost doubled.

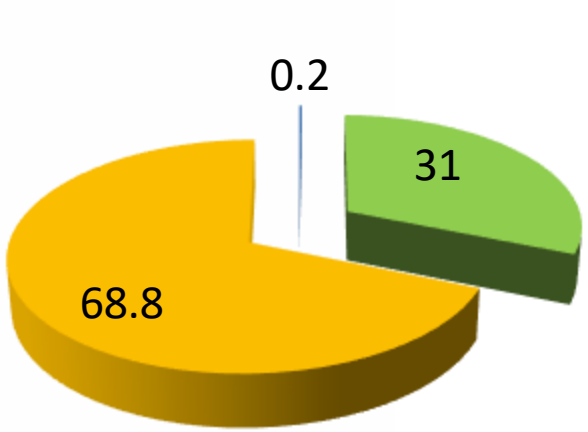
Results

- Prior to the start of research in 2018, there was no reliable information on the scale of sturgeon by-catch. It was believed that cases of sturgeon by-catch in trawls were very rare.
- In the course of research in 2018-2019, it was found that sturgeon by-catch in trawls is observed quite often. By-catch of sturgeon per 1 ton of sprat caught was 0.28 individuals.
- In 2021, a sharp tenfold increase in the frequency of sturgeon by-catch in trawls was recorded. The amount of by-catch per 1 ton of sprat reached 3.2 individuals. At the same time, sprat fishing was carried out in a rather limited area of the sea.
- In all years of observations, stellate sturgeon absolutely dominated in by-catch of sturgeons - on average, 94% of occurrence. The share of Russian sturgeon was 3.3%, beluga - 2.7%.
- In the samples of all three species, young immature individuals predominated. Only 5% of stellate sturgeon, 20% of beluga and 25% of Russian sturgeons have reached the size of sexual maturity.

What could be the reason for this obvious increase in the number of sturgeon (primarily stellate sturgeon) in the NWBS in recent years?

Given the stocking structure over the past 15 years and also that neither Romania nor the Dnieper sturgeon hatchery stocked stellate sturgeon in 2016-2020, it is impossible to explain the observed increase in the number of stellate sturgeon in the NWBS as the results of artificial stocking.

It is also obvious that the long-term efforts of the two countries to restore the Russian sturgeon population have not yielded visible results in the Ukrainian sector of the NWBS.

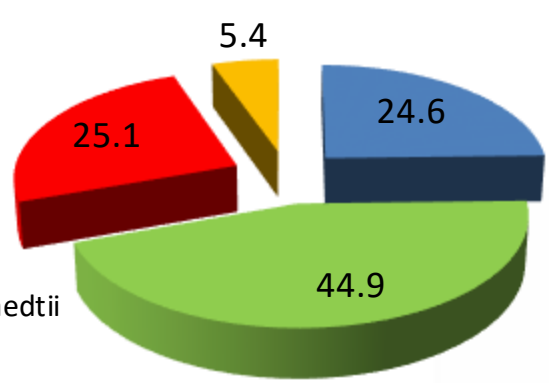


%

A. stellatus
A.gueldenstaedtii
A. ruthenus

18 880 thousands YOY

Species composition of sturgeons stocked by **Ukraine** in 2005-2020



%

A. stellatus
A.gueldenstaedtii
H. huso
A. ruthenus

648.8 thousands CWT tagged ind.

Species composition of sturgeons stocked in Danube by **Romania** in 2005-2020

What other factor, besides the relatively successful natural spawning, could have influenced the increase in the number of stellate sturgeon? It can be assumed that this was influenced by the reduction in poaching in Ukrainian waters.

Poaching is the most important reason for the current degradation of wild sturgeon populations in the Black Sea.

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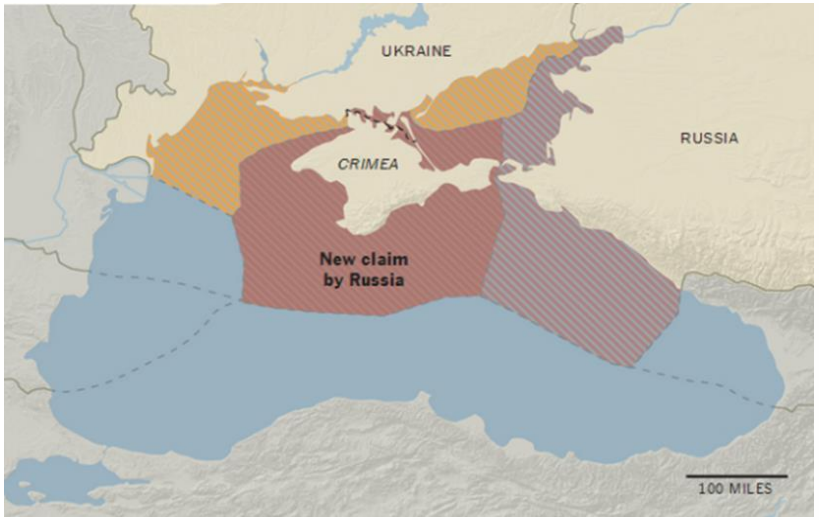
Legal Ukrainian EEZ
Black sea area: 110 956 km^2
BS coastline length: 3 001 k



Area controlled by Ukraine after the Crimea annexation in 2014
Black sea area: 28 153 km^2
BS coastline length: 2 040 km

After the annexation of Crimea by Russia in 2014, Ukraine lost ¾ of its water area in the Black Sea. The Russian Navy prevented any fishing in a large part of the water area, even beyond the limits of Russian claims.

Therefore, such an increase in the number of sturgeons may be associated with significant restrictions on fishing that were created by the Russian Navy in a large part of the NWBS after 2014.

Thus, we have obtained some visual confirmation, of what the preservation of natural populations of sturgeons primarily depends on. Obviously, without the eradication (or at least a significant reduction) of poaching, all efforts for the artificial reproduction of sturgeons will be unsuccessful.

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Thank you for your attention