A large sturgeon fish is shown entangled in a fishing net. The fish is dark green and has a prominent, pointed snout. The net is made of thin, golden-brown mesh and is draped over the fish. The background is a blue ocean under a hazy, golden sky, suggesting a sunset or sunrise. The overall scene is dramatic and highlights the impact of poaching on wild sturgeon.

POACHING OF STURGEON: A CONTINUING THREAT TO THE SURVIVAL OF WILD STURGEON IN THE LOWER DANUBE REGION

UPDATED EVIDENCE FOR STURGEON TRAFFICKING (2016-2022)

June 2023

SUMMARY:

This report provides an updated overview and analysis of sturgeon trafficking cases in the Lower Danube region. Cases include violations of fishing bans and regulations, seizures of illegal fishing gear and sturgeon specimens, and sturgeon products illegally entering the trade chain. The data compiled and analysed in this report are provided by law enforcement authorities from Bulgaria, Romania, and Ukraine.

Overall, 337 cases of illegal activities targeting or involving sturgeon between January 1st 2016 and December 31st 2022 are included in this study – with 130 cases from Bulgaria, 125 from Romania, and 82 from Ukraine. After an initial increase, the yearly number of cases remained relatively stable ranging between 50 and 65 cases per year. A minimum of 955 sturgeon specimens were seized in total. This includes 3 from Bulgaria, 553 from Romania, and 399 from Ukraine, and underlines the damage being done to the last remaining wild sturgeon stocks, whose survival is already severely threatened. The hotspots contributing to more than a third of the total number of cases in their respective countries stayed the same over the entire study period: Vratsa in Bulgaria, Tulcea in Romania, and Odesa in Ukraine.

Due to inconsistencies in reported data, and variations between countries and single reporting agencies, the figures in the report should be considered as the minimum number that occurred in the region over the assessed time period and that were detected, recorded and reported with all relevant information.

The data in this report provides the only publicly available compilation of such information for the Lower Danube region, which is otherwise only collected by, and available to, individual national agencies. This allows a better understanding of sturgeon trafficking and enables targeted counter action against these crimes in one of the world's key regions for the survival of these unique fish. The regional compilation of this data is critically important as any action or inaction in one country concerning enforcement of fisheries and trade restrictions affects the shared populations between the three countries.

WWF contributors in alphabetical order:

Darya Boldarieva, George Caracaş, Jutta Jahrl, Christophe Janz, Borislava Margaritova, Stoyan Mihov, Cristina Munteanu, Alexandra Petcu, Viktoriia Stanbury and Beate Striebel-Greiter



WWF-CEE gratefully acknowledges funding support from the LIFE Programme of the European Union. All views and opinions expressed are solely those of WWF-CEE and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor CINEA can be held responsible for them.

CONTENTS

1. INTRODUCTION TO THE PROBLEM	5
2. METHODOLOGY.....	7
3. RESULTS - REGIONAL OVERVIEW.....	9
3.1. Regional compilation of illegal incidents and seizures involving sturgeon	9
3.2. Localization of incidents.....	9
3.3. Sturgeon species reported in seizures.....	11
4. DISCUSSION OF RESULTS	12
5. RESULTS BULGARIA	15
5.1. Number of trafficking cases by year.....	15
5.2. Number of specimens seized.....	16
5.3. Fishing gear seized	16
5.4. Localization of incidents.....	17
5.5. Discussion of results.....	18
6. RESULTS ROMANIA.....	20
6.1. Number of trafficking cases by year.....	20
6.2. Number of cases per species	21
6.3. Fishing gear seized	21
6.4. Kilogrammes of sturgeon meat and caviar on record.....	22
6.5. Number of specimens seized.....	22
6.6. Localization of incidents.....	23
6.7. Discussion of results.....	24
7. RESULTS UKRAINE	26
7.1. Number of trafficking cases by year.....	26
7.2. Number of cases per species	27
7.3. Number of specimens seized.....	27
7.4. Fishing gear seized	28
7.5. Kilogrammes of sturgeon meat and caviar on record.....	28
7.6. Localization of incidents.....	29
7.7. Discussion of results.....	30
8. RECOMMENDATIONS.....	31
8.1. Law enforcement.....	31
8.2. Judiciary	34
8.3. All market actors including consumers.....	35
8.4. General recommendations for replication	35

1. INTRODUCTION TO THE PROBLEM

According to the IUCN, sturgeons and paddlefishes (Acipenseriformes) are the world's most endangered group of species¹. Their eggs, which are sold as caviar, are among the most valuable wildlife products in international trade, and the consumption of sturgeon meat has a long-standing tradition in many regions.

This has led to heavy overexploitation and a dramatic decline of sturgeons worldwide, including in the Danube and Black Sea countries. As a result, of the six sturgeon species formerly native to the Danube River, two — the European sturgeon (*Acipenser sturio*) and the ship sturgeon (*A. nudiventris*) — are considered locally extinct. Yet, the Black Sea region and the Danube River Basin are among the last remaining European regions with self-reproducing populations of sturgeon species and are therefore considered a priority for sturgeon conservation in Europe. However, all remaining four sturgeon species in the Danube Basin are listed as threatened by the IUCN Red List. The stellate sturgeon (*A. stellatus*), the Russian sturgeon (*A. gueldenstaedtii*) and beluga (*Huso huso*) are critically endangered; while the sterlet (*A. ruthenus*) was recently raised to a higher threat category and has been listed as endangered since 2022².

Meanwhile, the legal situation in the Lower Danube Region is clear: sturgeon fishing and the resulting trade in wild-caught sturgeons are banned completely for all native sturgeon species in Bulgaria, Moldova, Romania, Serbia and Ukraine. Furthermore, fishing of all sturgeon is prohibited permanently in all other Black Sea range states (both in river and marine waters), including Georgia, Russia and Turkey. With the exception of Bulgaria, all these bans are permanently enacted in national law. Bulgaria's current sturgeon fishing ban covers a five-year period (from 2021-2025).

The Pan-European Action Plan for Sturgeons³, adopted under the Bern Convention and endorsed for implementation under the EU Habitats Directive⁴, has also identified poaching and illegal trade as key threats to the survival or recovery of sturgeon populations. This

¹ <https://www.iucn.org/content/sturgeon-more-critically-endangered-any-other-group-species>

² <https://www.iucnredlist.org/ja/search/grid?taxonomies=100672&searchType=speciesb>

³ <https://rm.coe.int/pan-european-action-plan-for-sturgeons/16808e84f3>

⁴ Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora https://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

Action Plan has also been reinstated by a Ministerial Declaration of the International Commission for the Protection of the Danube River⁵.

Sturgeon poaching is one alarming example that wildlife crime continues to threaten species protected under the EU Habitats Directive, which lists all Danube sturgeon species under Annex V, obliging Member States to ensure that their exploitation and taking in the wild is compatible with maintaining their favourable conservation status. Notably all sturgeon species in Europe are reported by the Member States to be in unfavourable conservation status. Furthermore, international wildlife trade is regulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which lists all sturgeon species and has introduced universal caviar labelling requirements applicable for international and domestic trade. More recently the newly revised EU Action Plan against Wildlife Trafficking⁶, presents a coherent guiding document for the EU and its Member States to combat wildlife crime more effectively within and across EU borders.

Complementing the regulations and directives introduced above, the Environmental Crime Directive⁷ stipulates the criminalization of serious violations of legislation in the environmental field and requires Member States to provide for effective, proportionate and dissuasive criminal sanctions. It specifically refers to the killing, destruction, possession or taking of specimens of protected wild fauna as criminal acts with reference to the Birds Directive and the Habitats Directive as well as the trade in specimens of protected wild fauna or flora species or parts or derivatives thereof.

Despite various international policies and national legal protection in recent years, trafficking of sturgeon — which includes both poaching and illegal trade — has been known to occur for many years in all countries of the Lower Danube region, but no systematic data collection existed before WWF published its first report in 2021⁸. As generally observed in many fields of wildlife crime, data on these illegal activities is hard to find. The availability of solid data on the extent and distribution of sturgeon trafficking in the Danube region is, however, crucial to assess the severity of the issue, localize hotspots, and adequately address this threat. With the populations of Danube sturgeons teetering on the edge of extinction, tackling poaching and illegal trafficking of sturgeon products is a key component to securing the survival of the species.

⁵ https://www.icpdr.org/flowpaper/viewer/default/files/nodes/documents/2022_danube_declaration_summary_2.pdf

⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2022%3A581%3AFIN&qid=1667989438184>

⁷ Directive 2008/99/EC on the Protection of the Environment through Criminal Law <https://ec.europa.eu/environment/legal/crime/>

⁸ WWF, 2021, [Evidence for trafficking of critically endangered sturgeon in the Lower Danube Region](#)

In the absence of a responsible organisation to compile such data on wildlife crime for populations with trans-national distribution, WWF aims to continue collecting and combining this data for Danube sturgeon on the regional level, to the extent possible.

2. METHODOLOGY

The report is based on a compilation of sturgeon trafficking data from **Bulgaria, Romania and Ukraine** and continues efforts that began during an EU funded LIFE project. In 2021, WWF published a report on '*Evidence for trafficking of critically endangered sturgeon in the Lower Danube region*'⁸, which combined the results of a targeted market survey, including a forensic analysis of collected samples, with a compilation of official data from enforcement authorities on illegal sturgeon fishing activities for the period 2016-2020. The methodology for compiling data from authorities is continued in this report.

The term “wildlife trafficking”, according to the United Nations Office on Drugs and Crime (UNODC), involves the illegal trade, smuggling, poaching, capture, or collection of endangered species of protected wildlife, and derivatives or products thereof. **The data compiled in this survey encompasses different illegal acts and ranges from seized illegal fishing gear to poached sturgeon and caviar, meat products or whole specimens detected in the trade chain.**

The presented **data were provided on request by competent authorities**, including different police branches, national or regional fishing authorities, customs, and the judicial administration in the case of Ukraine. They were compiled by WWF in a common database. A few cases deriving from **reliable media reports** were included after double-checks ensured that they were not already covered by authority reports.

For this report, only incidents of **sturgeon trafficking reported between January 1st 2016 and December 31st 2022** were considered. While older data are available for Romania and Bulgaria, this report only includes data from 2016 onwards, when new orders were issued in both countries to prolong their national sturgeon fishing bans. For Ukraine, data on sturgeon trafficking was only recorded and available as of 2016, with documentation of the cases by the authorities increasing ever since.

The data in this report provides the only publicly available compilation of such information for the Lower Danube region, which is in principle only collected by, and available to, individual national agencies.

Limitations to interpretations of the data:

Figures and trends in seizure records derived from this data should not be viewed as a complete picture of illegal activities targeting sturgeons in the countries covered, only as indicating patterns of illegal activities. There is currently no streamlining between the agencies providing the data concerning either their enforcement efforts or the recording of the information. The level of detail in the reporting varies greatly between cases, between reporting agencies and between countries. This limits the comparability of data obtained. As a result, **the numbers provided in this report (i.e., the total number of specimens affected, the total length of hook lines detected or the total amounts of kilogrammes seized) are the lowest verifiable number** and do not reflect the totality of detected cases, as the authors were only able to include information from cases where all relevant detail was provided.

The types of data collected include the:

- type of illegal fishing gear seized (i.e., karmaci – illegal hook lines to catch sturgeons, with length specifications);
- species of sturgeon caught or traded;
- amount of goods discovered (ideally in kilogrammes of fish or number of individual specimens; sometimes the specification only states jars or containers of caviar, which make comparisons or calculations impossible);
- apprehending agency; and
- location of the seizure and the date of apprehension of the poachers or detection of goods (ideally indicating the Danube riverine kilometre, sometimes only the nearest village is named).

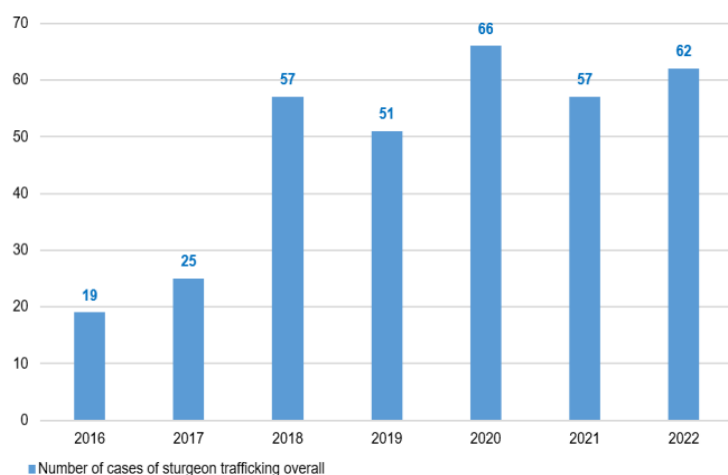
Several cases with missing information had to be excluded from this report's calculations.

3. RESULTS - REGIONAL OVERVIEW

3.1. Regional compilation of illegal incidents and seizures involving sturgeon

The regional analysis comprises the three main countries of the Lower Danube region - Bulgaria, Romania and Ukraine.

Overall, 337 cases of illegal activities targeting or involving sturgeon were compiled in this study for the period between January 1st 2016 and December 31st 2022 – with 125 cases in Romania, 130 in Bulgaria, and 82 in Ukraine. The first incident recorded in Ukraine dates back to 2016 after which records gradually increased. This means that overall,



few cases were reported in 2016 (19) and 2017 (25), with the majority of cases being reported in the later years – 2018 (57), 2019 (51), 2021 (57), and 2022 (62). The highest number of incidents was recorded in 2020 (66). This trend could reflect an increase in illegal activities or better enforcement efforts or

more cases being reported.

From the – partly incomplete – data available in these cases, **the minimum verifiable number of sturgeon specimens seized totals 955 individuals. This includes 3 from Bulgaria, 553 from Romania, and 399 from Ukraine.**

3.2. Localization of incidents

For most cases, but not all, a geographic location was provided. This was sometimes very specific, as in the case of Bulgarian data indicating the Danube riverine kilometre where illegal gear was found. In a few Romanian cases, no specific location was given, and such cases did not allow for a more detailed treatment. Nevertheless, with most incidents it was possible to attribute the county (oblast) where the case occurred, and these are presented in the maps below. The two maps below depict the geographic distribution of cases on county

level in the region for the period 2016-2022 and for the year 2022 respectively. Colour-coding is based on the share of the total number of national cases contributed by each county.



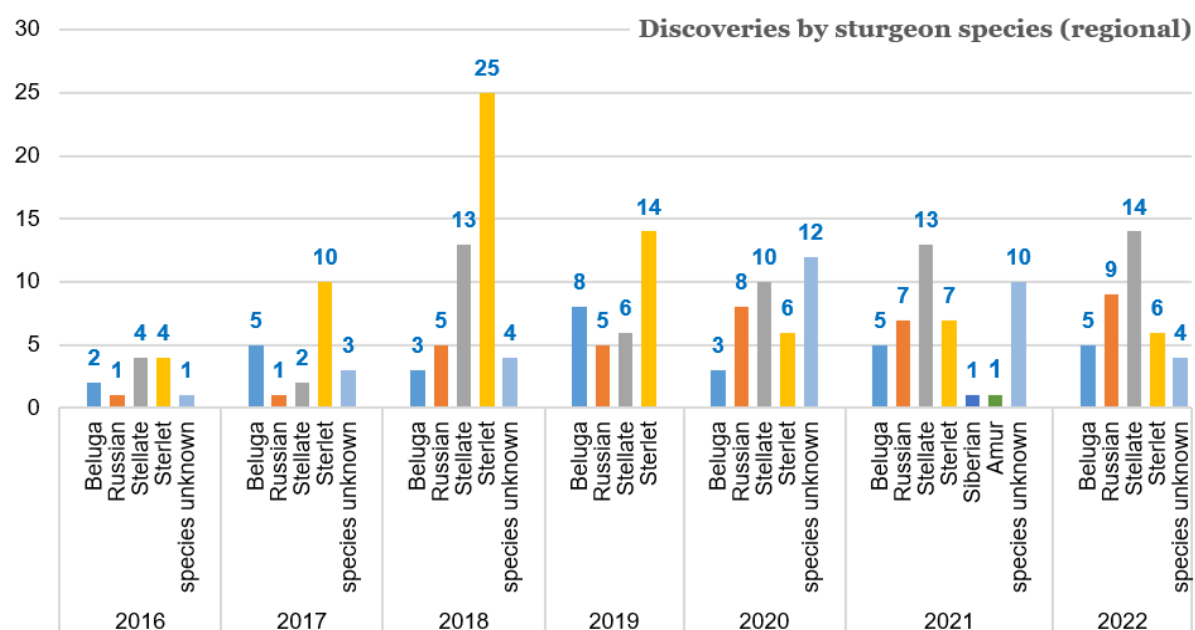
The hotspots contributing to more than a third of the total number of cases in their respective countries stayed the same over the entire study period, including in 2022. These are Vratsa in Bulgaria, Tulcea in Romania, and Odesa in Ukraine.



3.3. Sturgeon species reported in seizures

All cases where authorities included information about sturgeon species in the recorded data are summarized in the graph below. In situations where several different species were included in the same incident, these are listed individually in the graph. Where one incident involved several specimens of the same species, it was recorded as one single case. According to the respective laws in Bulgaria, Romania and Ukraine, any accidentally caught sturgeon or sturgeon seized by authorities must be released back into the original water basin, regardless of their state (dead or alive).

Sterlets (*A. ruthenus*) — the most abundant species, listed as Endangered in the IUCN Red List of Threatened Species™ since its latest update — were involved in 72 cases. Sixty two cases included critically endangered stellate sturgeons (*A. stellatus*). Thirty six cases involved Russian sturgeons (*A. gueldenstaedtii*), which are critically endangered and extremely rare in the Danube, with very low natural reproduction still occurring. Thirty one cases affected critically endangered beluga sturgeons (*Huso huso*). A Ukrainian case in 2021 additionally included an unknown number of Siberian and Amur sturgeons, which are non-native to the Danube and Black Sea but popular in aquaculture. In a further 34 cases, the specific species of the seized sturgeon was not determined/reported and consequently they are not included in the graph below.



4. DISCUSSION OF RESULTS

The number of 337 cases of illegal incidents registered 2016-2022 and its occurrence in all three countries of the Lower Danube Region - Romania (125), Bulgaria (130) and Ukraine (82) - clearly point to the fact that poaching remains a severe threat to wild sturgeon populations in this region.

The following illegal activities were documented:

- **use of illegal gear** for targeting sturgeon; in particular, karmaci hook lines seem to be a huge problem in Bulgaria, where a total of 879 of these illegal sturgeon fishing lines were seized (see country chapter); the hook lines seized in the survey period add up to at least 33,3 km in length;
- **actual poaching** of sturgeons, which were seized in the boats or nets of fishers;
- **transportation of poached sturgeon** to another destination; and
- **illegal selling or import/export of sturgeon caviar or meat.**

Some hotspots and potential risk areas are already clearly demonstrated. In each country there is one county that stands out over the whole study period with more than a third of all cases. Reasons for this are discussed in the national chapters, although we can already conclude that in counties with a longer stretch of the Danube, its delta or the Black Sea coast, it is more likely to detect cases. Yet, enforcement efforts may also vary geographically. Therefore, the absence of recorded cases in this report for some counties along the Danube and Black Sea coast does not prove an absence of trafficking activities, merely that no cases were reported. Similarly, it is unclear to what extent the degree of intensity of law enforcement efforts in the identified hotspot counties contributed to the comparatively high number of reported cases there.

From the - partly incomplete - data available, the minimum number of sturgeon specimens seized totals 955 individuals. This includes 3 from Bulgaria, 553 from Romania, 399 from Ukraine and underlines the damage being done to the last remaining wild sturgeon stocks.

The outstandingly low number of 3 sturgeons recorded and reported in Bulgaria in combination with a high number of 879 pieces of karmaci hook lines seized signal that this

should be a high priority for further investigations. It can be assumed that illegal catches have been taking place, as the effort needed to deploy the hook lines is significant and the risk of being detected by enforcement authorities is considerable for the poachers.

The frequency with which a specific species is recorded in the seizures may reflect its natural abundance in the wild. Sterlets were recorded most frequently, and beluga sturgeons were reported the least.

As gaps in data reporting and differences in type of data (alternatively represented in kilogrammes, specimens, and jars) recorded by different enforcement entities prevail, it can be assumed that in reality the number of specimens affected by the collected cases alone is much higher.

In addition, it is evident that, as in any other form of crime, the cases detected by law enforcement never represent the full picture, always leaving a grey area of undetected cases. In wildlife crime, the undetected cases might be even higher than for other economically-more-enticing crimes. Law enforcement agencies have limited resources and often still attribute crime against wildlife a lower priority, compared to other forms of crime. With respect to violations against sturgeon fishing bans, it can be noted that, as a result of continuous efforts by WWF and partners, the awareness of responsible enforcement agencies to the issue of sturgeon trafficking has increased during recent years. At the same time, many agencies struggle with a lack of staff capacity and resources, ranging from boat and fuel to laboratory technology for forensic methods. The area along the Lower Danube, and in particular the Delta or the Black Sea coast, is vast and hard to control. The application of specialized equipment, such as the deployment of sonar to detect hook lines or drones to detect illegal fishers, is therefore supported by WWF in the region.

No information on the control efforts of the enforcement agencies regarding time invested or locations surveyed was made available. It is therefore impossible to reach a solid conclusion as to whether the overall trend of all illegal activities (detected plus undetected) is increasing or decreasing. Generally, it would be expected that an increase in enforcement efforts would lead to an increase in reported cases at first; and that this would be followed, only after some time, by a subsequent decrease, provided that these efforts are sustained at a similar level, and that illegal activities are discouraged effectively. With the information available, it can only be assumed that numerous cases remain undetected and that the picture painted in this report is only the tip of the iceberg. As the data reported has then been relatively stable at a higher level since 2018, it can be concluded that enforcement efforts improved in the first

years (due to training and capacity building under the LIFE for Danube sturgeon project⁹) and that at the same time illegal fishing and trade of sturgeon remain ongoing threats in the region. As a conclusion it must be stressed that the efforts of enforcement agencies should not only be maintained but also further increased in order to reduce the negative impact on these highly threatened sturgeon populations.

It is strongly suggested that strategies for reporting both enforcement efforts and sturgeon trafficking data should be enhanced and harmonized between the different national entities, and also between the three countries. Doing so will facilitate regular and easier comparison of data and allow for a better evaluation of the impact of illegal activities on wild sturgeons and for targeted enforcement measures (optimized timing and localization of controls). Further recommendations to improve the situation are found in chapter 8.

Persistent rumours that corruption may be involved in different aspects of sturgeon trafficking have circulated over the years. The case published in 2022 by the Ukrainian State Bureau of Investigation, including an arrest for alleged bribery, support these rumours (see below). Further investigations and attention on this aspect is required in all countries.

The regional coverage of this report is of crucial importance, as the countries of the Lower Danube and North-Western Black Sea share the same sturgeon populations. Poaching incidents in one country threaten the survival of the entire population. Equally, enforcement efforts in one country support the protection of the shared populations, thus also benefiting other range countries.

With the worryingly low numbers of sturgeon in the wild, the prevailing direct threat from illegal fishing and trade limits the chances of recovery for stocks and fuels the decline of populations, some of which are on the brink of extinction, as demonstrated by the recent extinction of ship sturgeon (*A. nudiventris*) and the increased threat status of sterlet (*A. ruthenus*) in this region. The existing legal protection through fishing bans and trade regulations must become a priority of law enforcement actions and must be enforced with continuous efforts. If the alarming level of poaching of wild sturgeon cannot be stopped, all other recovery measures are doomed to fail. Together with the environmental impact, other forms of crimes can be involved and should be investigated, such as loss of taxation revenue, consumer deception or fraud, health and veterinary issues, corruption and the potential involvement of organized crime.

⁹ <https://danube-sturgeons.org/>

5. RESULTS BULGARIA

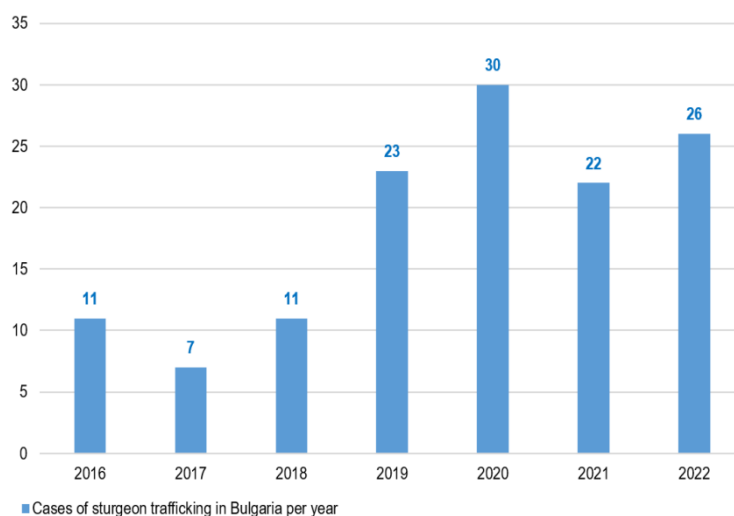
The data used in this report on sturgeon trafficking in Bulgaria was obtained from the Bulgarian Border Police, Bulgarian Customs, the Regional Inspectorate of Environment and Water, and the Executive Agency for Fisheries and Aquaculture of Bulgaria. All data were taken between January 2016 and December 2022. The reported cases comprise a range of illegal activities, from the use of illegal gear to actual landing or transportation of poached fish with the intent to trade.

The data provided include:

- references to the type of illegal fishing gear seized;
- species of sturgeon poached;
- the amount of discovered goods (in kilogrammes of fish or number of individual specimens);
- the apprehending agency; and
- the location (specified as river kilometres).

5.1. Number of trafficking cases by year

In Bulgaria, a total of 130 cases of illegal activity linked to the poaching and trade of protected sturgeon species were reported by enforcement authorities between January 2016 and December 2022. In the vast majority of cases, the reports were of discoveries of banned fishing gear; only in 3 cases were illegally caught fish reported. The data shows that most seizures of illegal fishing gear occurred during the spring, in the months between February and April, coinciding with the spring migration of sturgeon. The second peak is during the autumn migration, mainly in October and November.



5.2. Number of specimens seized

Only three cases involving a sturgeon specimen were recorded between 2016 and 2022 in Bulgaria. All other cases pertain to fishing gear seized, with no fish being reported. The first was a beluga sturgeon caught on 19.02.2019 in the village of Aidemir, Silistra. The two-metre long specimen, weighing 165 kg, was still alive, and was tagged and released back into the wild. The second case took place on 11.02.2020 near the town of Svishtov and involved a Russian sturgeon weighing 6,5 kg. The most recent incident involved a large beluga sturgeon weighing 100 kg, which was discovered near the town of Kozloduy on 18.03.2020. As the specimen was still alive, it was released back into the wild.

5.3. Fishing gear seized

Between 2016 and 2022, 879 pieces of karmaci hook lines were discovered by law enforcement authorities in Bulgaria.

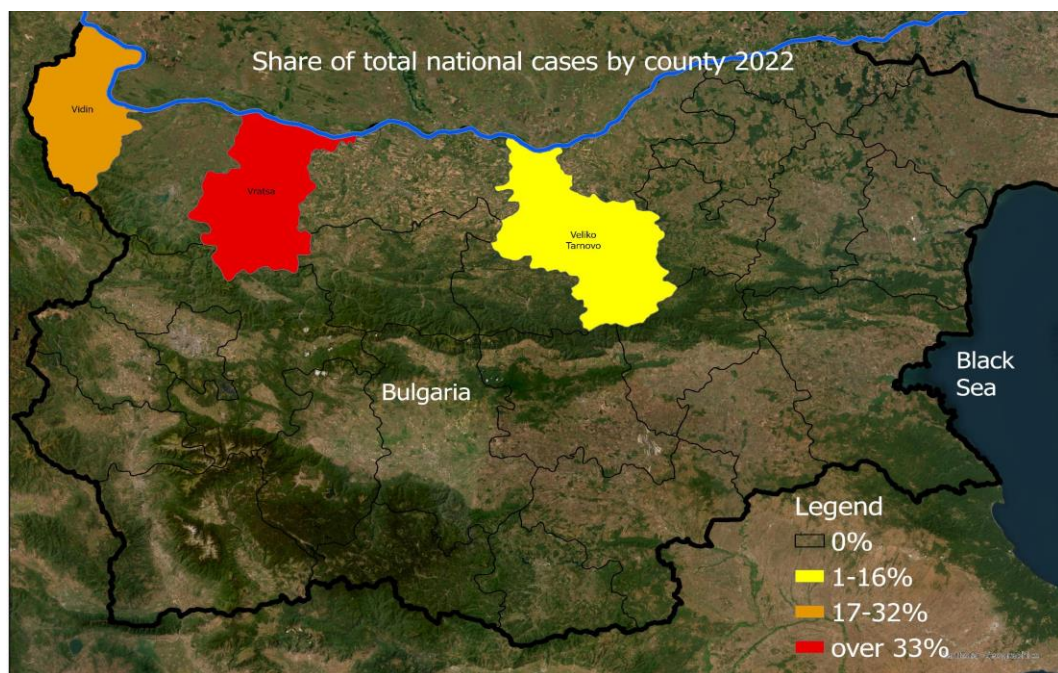
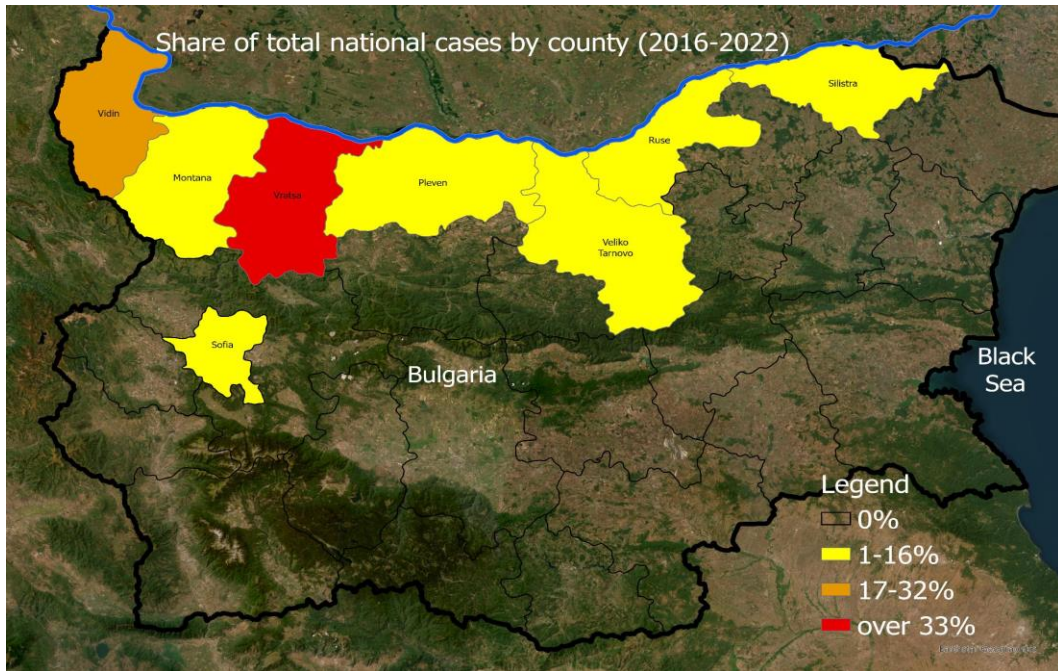
2016	2017	2018	2019	2020	2021	2022
50	26	86	172	260	154	131

Table - Number of karmaci hook lines found in Bulgaria (2016-2022)

The reported length of karmaci lines found by enforcement authorities within this seven-year period in Bulgaria has a combined length of 33.312 metres. And additional 15 cases involving 109 karmaci lines were reported without any indication of the lines' lengths.

5.4. Localization of incidents

The two maps below depict the geographic distribution of sturgeon trafficking cases in Bulgaria for the periods 2016-2022 and 2022 respectively. Color-coding is attributed based on the share of the total number of national cases contributed by each county (oblast).



5.5. Discussion of results

A relatively high number of trafficking cases has been recorded in Bulgaria during the last four years, which could partly be explained by intensified control efforts on behalf of the Bulgarian Border Police as well as the deployment of special sonar equipment allowing for easier detection of illegal poaching tools.

The localized hotspots of reported illegal activities are connected to the seizures of karmaci hook lines and have moved little over the years - mainly near the islands of Kozloduy, Vardim and Belene. The reasoning behind the deployment of the karmaci hook lines at these locations is linked to their mode of use, requiring them to be installed along sturgeon migration routes and wintering bottlenecks – deep, narrow sections of the river, with diverse geography such as in a sidearm or the vicinity of islands. Another reason is connected to the traditional background of karmaci use. Karmaci poaching is a very specific, dangerous and expensive method of poaching and it requires specific knowledge and lengthy training. The method appears to be concentrated in geographically separated, small, and closed communities.

There is a need for training and better equipment for enforcement agencies. Karmaci hook lines are very hard to detect in deep waters. They are neither visible from the surface nor with standard sonar equipment. Special sonars with specific adjustments are needed. WWF tested and supported the application of such equipment in cooperation with the Border Police for the first time. Extracting the detected karmaci from the deep river bottom is also a very specific, potentially dangerous process and targeted training of enforcement officials is required.



© Bulgarian Border Police.

Seized karmaci hook line on board of a Bulgarian Border Police vessel.



© Bulgarian Border Police.

Karmaci hook lines visualized on 3D sonar - in this particular case at 9 metres depth

This high number of karmaci hook lines found in Bulgaria is remarkable and is not observed in other countries. At the same time, all karmaci hook lines were seized in the common Romanian-Bulgarian section of the Danube, but there are no reports of seized karmaci hook lines from the Romanian authorities responsible for this river section. These sections should therefore also be controlled by Romanian enforcement authorities, ideally in cooperation with their Bulgarian counterparts.

Similarly, the low numbers of illegally caught or traded sturgeons detected and reported in Bulgaria by law enforcement authorities merits deeper investigation. Market investigations and forensic analysis⁸ had shown that meat from wild-caught sturgeon could be found offered for sale in restaurants and shops in Bulgaria (4 cases out of 32 tested samples), so it can be expected that more sturgeon specimens are caught illegally but remained undetected by authorities.

6. RESULTS ROMANIA

The Romanian data on sturgeon trafficking stem from reporting by the Romanian Police (including the Danube Delta Police Department), the Romanian Border Police, the National Environmental Guard, the Romanian National Agency for Fisheries and Aquaculture, as well as external sources such as Romanian news outlets, WWF Romania and Radio Delta.

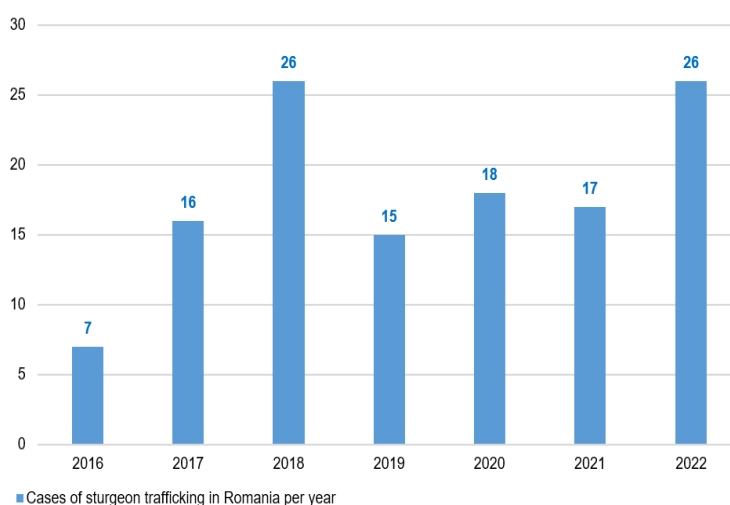
The data include references to the:

- type of illegal fishing gear seized;
- species of sturgeon poached;
- amount of discovered goods (in kilogrammes of fish/caviar or number of individual specimens);
- apprehending agency;
- location and date of apprehension of poachers or detection of goods; and
- limited information that is available about the potential penalty, the handling of the goods found and related court proceedings.

The completeness of the data varies greatly from case to case.

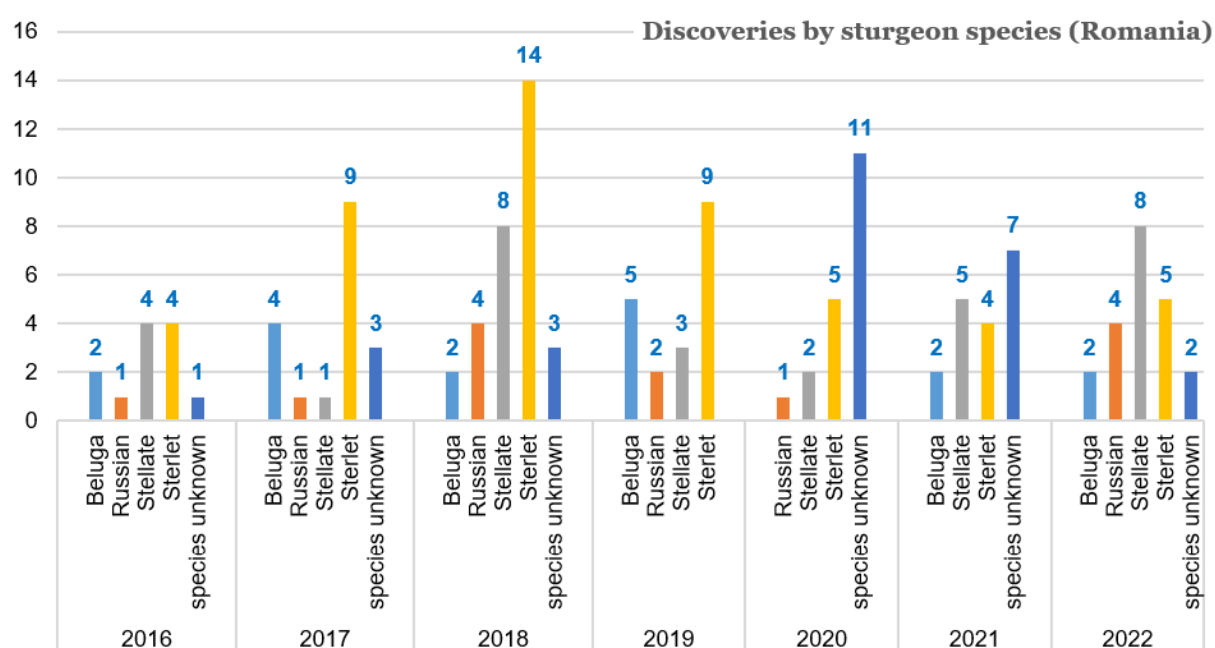
6.1. Number of trafficking cases by year

Overall, 125 cases of sturgeon trafficking (trade, poaching and use of prohibited fishing equipment) were reported in Romania for the period April 2016 to December 2022. An additional series of cases related to sturgeons, which allegedly took place between 5 and 9 June 2017, were omitted from this analysis, as the veracity of accounts could not be confirmed with Romanian authorities.



6.2. Number of cases per species

The graph below lists the number of cases by species of sturgeon detected by enforcement authorities between 2016 and 2022 in Romania. If several different species were found during the same operation, they are listed individually in the graph. However, if one case involved several specimens of the same species, it is only listed once. Throughout the entire time period, 17 cases involved beluga sturgeons, 13 involved Russian sturgeons, 31 involved stellate sturgeons and in 50 cases, sterlets were discovered. In further 27 cases, no data regarding the type of species was provided.



6.3. Fishing gear seized

Of the 125 cases of sturgeon trafficking recorded in Romania between 2016 and 2022, only 18 contain indications regarding the fishing gear that was used by the poachers. These include 1 gillnet, 1 karmaci line, 2 monofilament nets and 14 fishing nets (specific type undefined). These data indicate that not only karmaci, but also other fishing techniques pose a threat to sturgeon.

6.4. Kilogrammes of sturgeon meat and caviar on record

Reporting on sturgeon trafficking in Romania sometimes includes data on the number of fish detected by the enforcement unit, sometimes the weight of the meat discovered, and in some cases both or neither. The table below gives an overview of the amount of fish and caviar (in kilogrammes) found in Romania between 2016 and 2022. In total, at least 4.229,1 kg of sturgeon meat and at least 35,8 kg of caviar were discovered by law enforcement authorities during this period.

	2016	2017	2018	2019	2020	2021	2022
sturgeon:	419,1 kg	1292,4 kg	573,4 kg	715,2 kg	431,5 kg	404,9 kg	392,7 kg
caviar:	-	2,8 kg	0,4 kg	-	22,6 kg	7,6 kg	2,5 kg

Table - Kilogrammes of trafficked sturgeon meat/caviar in Romania (2016-2022)

Additionally, four jars of caviar were seized on 02.10.2018, but were reported without any weights, and had to be omitted from the calculations.

6.5. Number of specimens seized

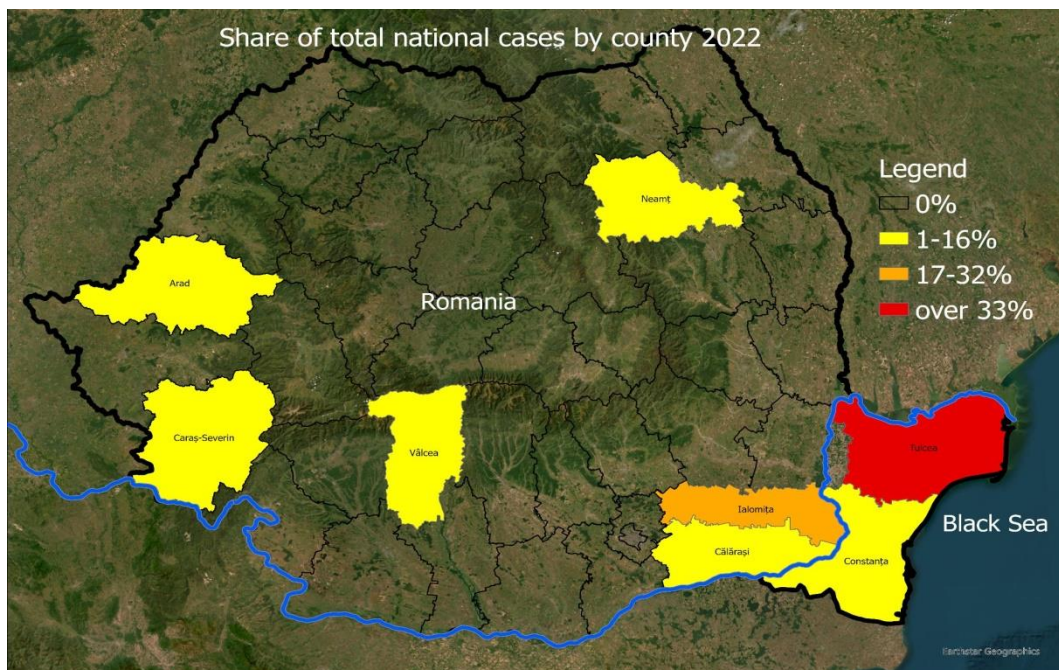
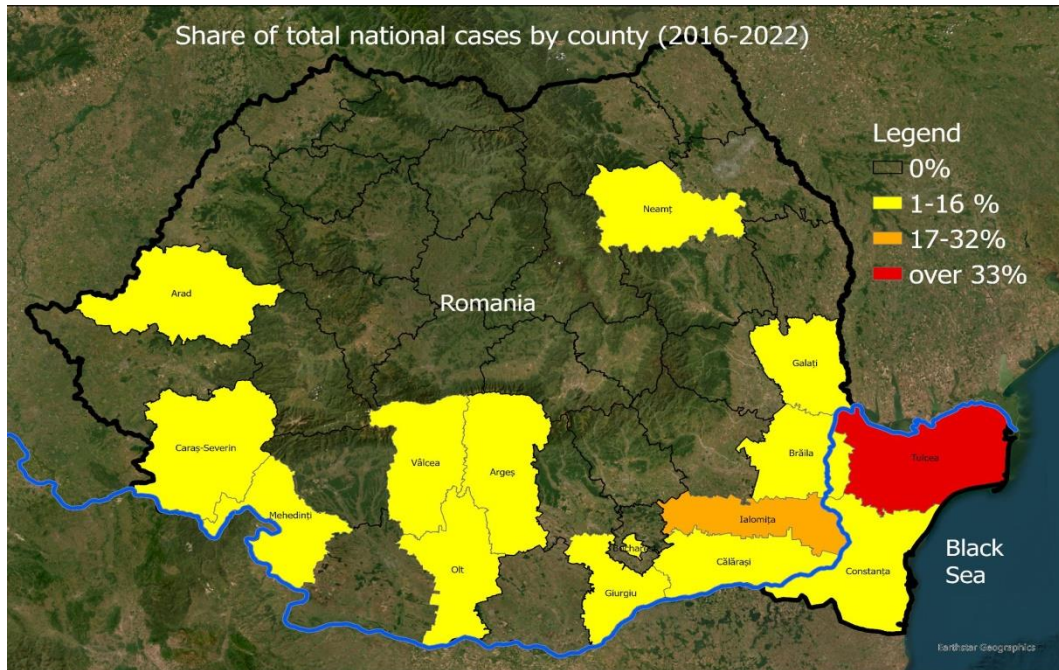
In Romania, during the period analysed in this report, law enforcement authorities detected at least 553 specimens of sturgeon that were illegally fished in the Danube or its tributaries. The following table breaks this number down by year. Only cases in which authorities reported the specific number of fish involved were used to create the table.

2016	2017	2018	2019	2020	2021	2022
5	94	190	40	107	62	55

Table - Number of sturgeon specimens seized in Romania (2016-2022)

6.6. Localization of incidents

The two maps below depict the geographic distribution of sturgeon trafficking cases in Romania for the periods 2016-2022 and 2022 respectively. Colour-coding is attributed based on the share of the total number of national cases contributed by each county. The county of Tulcea was the scene of more than a third of all cases every year.



6.7. Discussion of results

The majority of illegal cases in Romania are documented in the Danube Delta, which represents the main entrance to the Danube river system for sturgeon on their upstream migration, while fishing activities also take place in the Black Sea where sturgeon are present all year round.

In August 2022, the Tulcea Border Police detected two Romanian citizens transporting 20 sturgeons (sterlet, *A. ruthenus*) weighing more than 15 kg in total in a vehicle without legal documents. The sturgeons were reported to be alive and were returned to the wild in the presence of a representative of the National Agency for Fisheries and Aquaculture, the border guards and the alleged traffickers.



© Coast Guard

Earlier in the year, between 2 and 8 May 2022, officers of the Danube Delta Police Service carried out six patrols in the Razim-Sinoie lagoon complex and two in the Black Sea aimed at preventing and combating illegal fishing. Fifteen sturgeon, including Russian sturgeon (*A. gueldenstaedtii*) and stellate sturgeon (*A. stellatus*), were seized during these operations and subsequently released back into their marine environment.

20 seized sterlet, August 2022
<https://ziaruldetulcea.ro/20-de-sturioni-pescuiti-ilegal-din-dunare-au-fost-redati-mediului/>



© Romanian Police

Extracted from [Youtube video](#) published through [social media post](#) on Facebook in Mai 2022

The remainder of the cases in 2022 were in, or close to, well-known sturgeon breeding areas where fish congregate and become vulnerable to poaching. Among these, two seizure sites from 2022 were new: Arad and the reservoir of Izvorul Muntelui Bicz. These cases could be related to fish escaped from aquaculture or even cases of theft from nearby sturgeon fish farms.

In conclusion, more controls should be performed in the Danube Delta to reduce sturgeon poaching by using more efficient techniques and equipment to reach inaccessible areas (camera traps, drones, etc.), but without neglecting the need for human resources and boats, which will still need to confirm poaching cases potentially detected by drones. In 2022 and 2023, WWF-Romania participated in three common control activities organized by the Romanian Police, the National Agency for Fishing and Aquaculture and the National Environmental Guard, piloting a drone acquired in the LIFE project - Successful Wildlife Crime Prosecution in Europe (SWiPE)¹⁰. During these missions, fishing boats and nets have been detected with drone images. However, the nets could not be verified by police officers in the field because necessary patrol boats were already in use in other operations far from the sites detected by drones.

It is also recommended that common controls be carried out in collaboration with neighbouring states.

¹⁰ <https://stopwildlifecrime.eu/>

7. RESULTS UKRAINE

For Ukraine, data is available for the period 2016-2022 and was obtained from the State Fisheries Agency of Ukraine with reports from the Kherson, Chernivtsi, Odesa, Azov Sea and Black Sea Fishing Patrols, Ukrainian customs officials, the Ukrainian State Border Guard Service, the State Environmental Inspection, and the State Judicial Administration of Ukraine. A few cases stemming from Ukrainian media outlets have also been added, if not already covered by authority data.

The reporting includes information about:

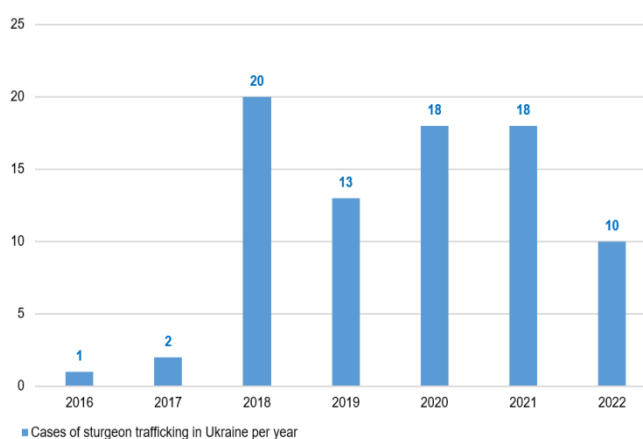
- the date and location of the cases;
- indications of the amount of fish involved (in kilograms or in number of individual fish);
- the fishing gear used;
- the name of the apprehending agency;
- what happened to the discovered good; and
- details about court cases and penalties.

However, many cases were filed without complete information for all these categories.

7.1. Number of trafficking cases by year

Before 2017, law enforcement institutions in Ukraine did not collect information about sturgeon trafficking separately. Only in 2017 was a new chapter added to official reports of the State Fishing Authority containing information on sturgeon trafficking. For the common compilation period 2016-2022, the first case of sturgeon trafficking in Ukraine was thus recorded on 11.08.2017 and the first case of seized caviar was recorded on 02.02.2016.

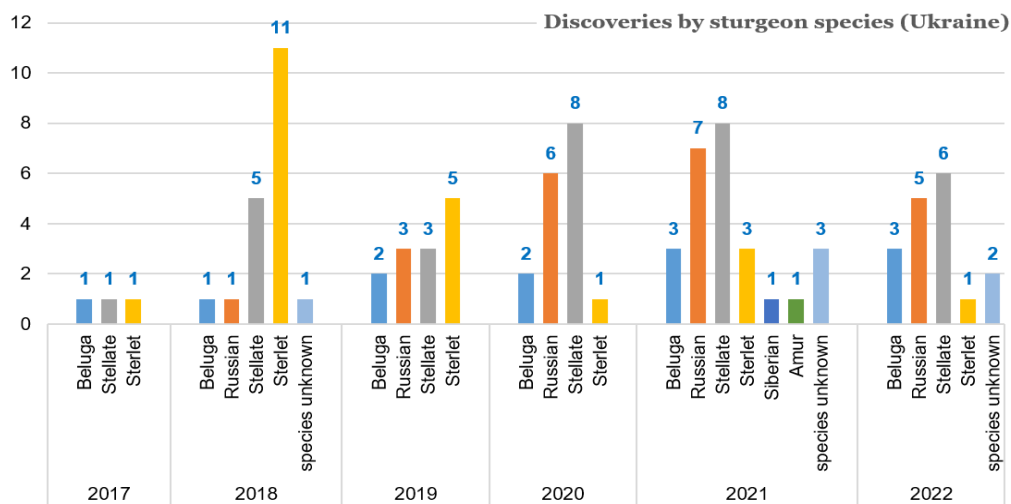
All recorded cases in the graph include a discovery of sturgeon or caviar by the authorities. In some of them, fishing gear was also noted. In total, 82 cases of sturgeon trafficking were reported during



the period covered.

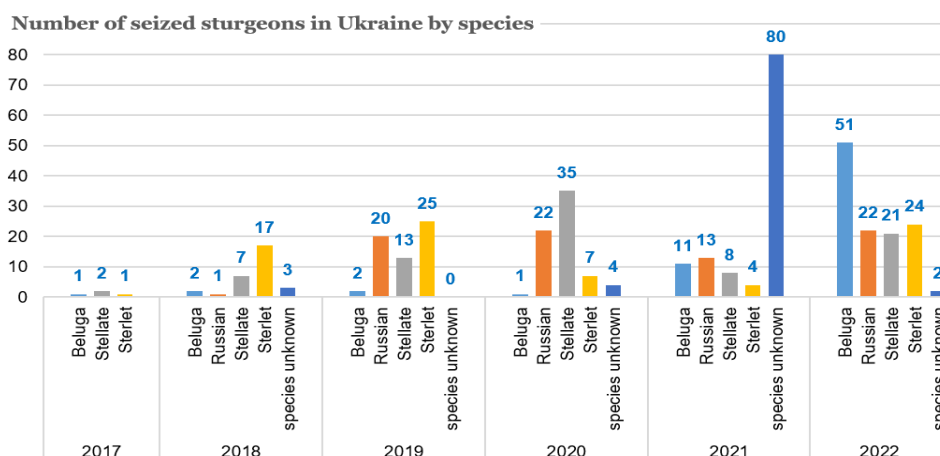
7.2. Number of cases per species

In the period covered, 12 of the reported sturgeon trafficking cases involved beluga sturgeons, 22 involved Russian sturgeons, 31 involved stellate sturgeons, and 22 cases involved sterlet. Amur and Siberian sturgeon - non-native species for the Danube, but popular in aquaculture - were both reported in one case. In seven cases, the type of sturgeons found is unknown. Cases involving caviar have not been included in the graph below. If two or more species of sturgeon were discovered in the course of the same operation, they are counted as individual cases in the graph. Yet, if one case involved several specimens of the same species, it is only listed once.



7.3. Number of specimens seized

Of the three countries analysed in this report, Ukraine features the most specific reporting. This allows for the data to be broken down not only by the number of fish found per year — 399 for the entire period — but also by individual native species. Only cases in which the number of fish was explicitly reported were used in the compilation of the data of the graph.



7.4. Fishing gear seized

In Ukraine, 47 of the 82 reported cases include data on the fishing gear used. In one case, scaffolding nets were used, in another floating nets, one featured a fyke net, and in a fourth, authorities found a beam trawl. Gill nets were used in seven different cases, while authorities reported nets (specific type undefined) in a further 36 cases. In three separate cases in 2022, authorities seized a total of nine boats.

7.5. Kilogrammes of sturgeon meat and caviar on record

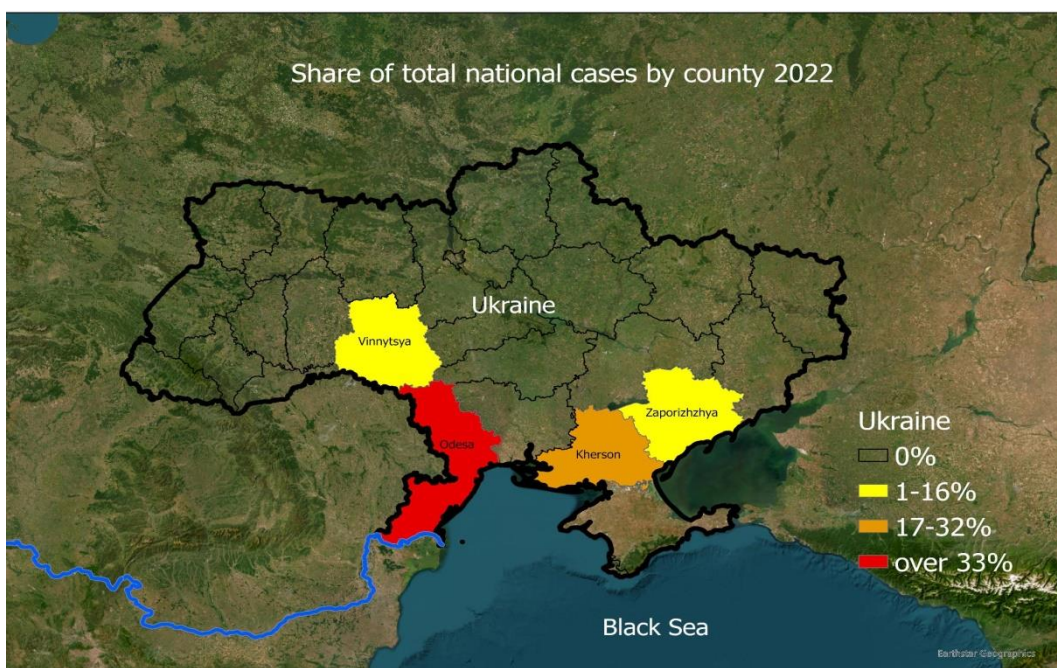
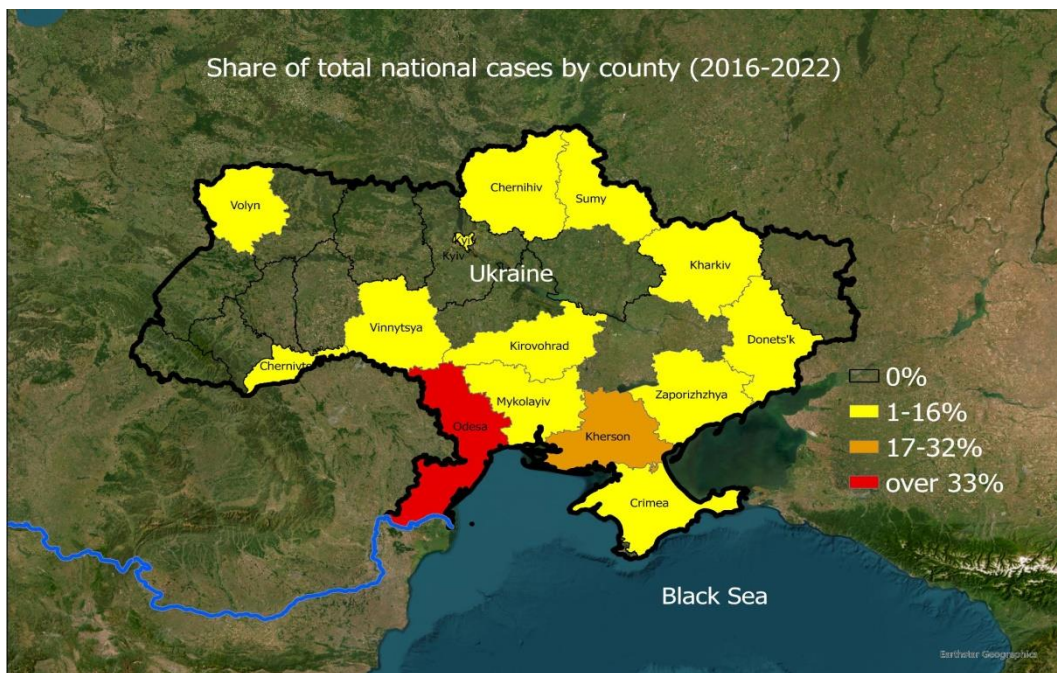
The table below gives an overview of the amount of sturgeon and caviar (in kilogrammes) seized in Ukraine between 2016 and 2022. In 34 out of the 82 reported cases, enforcement authorities indicated the weight of the seized fish. In total, 47,4 kg of caviar were seized by Ukrainian authorities. One case from 20.10.2019 involved 40 glass jars and 40 packages of caviar seized by customs at Boryspil Airport. Because their weight was not reported, this case was not included in the table below. One and a half kg and 6 kg of dried fish were seized by law enforcement authorities on 28.11.2017 and 12.08.2018. As dried fish meat weighs significantly less than fresh fish, these two cases have also been left out from the table below.

	2016	2017	2018	2019	2020	2021	2022
sturgeon:	-	3,3 kg	26,6 kg	32,5 kg	225,4 kg	13 kg	478 kg
caviar:	2,5 kg	-	1 kg	5 kg	35,25 kg	-	3,6 kg

Table – Kilogrammes of trafficked sturgeon meat/caviar in Ukraine (2016-2022)

7.6. Localization of incidents

The two maps below depict the geographic distribution of sturgeon trafficking cases in Ukraine for the periods 2016-2022 and 2022 respectively. Colour-coding is attributed based on the share of the total number of national cases contributed by each county (oblast). Odessa accounted for more than a third of all reported national cases for each year.



7.7. Discussion of results

In 2022, the enforcement authorities in Ukraine took serious steps towards increased transparency and actively reported cases of seized sturgeon and sturgeon bycatch on their websites and social media channels. We noticed their willingness to deliver more transparent information to the public.

More than a third of all Ukrainian cases have been reported from the county of Odesa, which is not surprising due to its large access to the Danube Delta and to the Black Sea coast. However, it may also be related to a lack of equal enforcement efforts in the other regions, and it would be recommended that enforcement efforts in other counties, in particular those bordering the Black Sea, be increased.

In the midst of the ongoing war, two exceptional cases should be highlighted, underlining the continuing wildlife conservation efforts of Ukrainian officials. In the beginning of 2022, [424 kilogrammes and a total of 53 fishes were seized](#) by the Kherson border detachment, Black Sea Fish Patrol, and Skadovsk police. The second exceptional case published by [the State Bureau of Investigation reports the involvement of bribery in the Odesa region](#). At the end of September 2022, the State Bureau of Investigation (SBI) reported that two employees of the State Fisheries Agency were involved in illegal fishing by taking bribes from commercial fishermen in the Danube River. These two employees "allowed" fishermen to fish outside of permitted periods and to catch sturgeon without punishment. The report states that in return, the fishermen paid them 50% of the value of the sturgeon catch. Photos of sturgeons seized in this wildlife crime case can be seen on the right.

The EU funded LIFE project "Successful wildlife crime prosecution in Europe" (LIFE SWiPE) summarized the findings of wildlife crime in Ukraine in a national report¹¹, including conclusions and recommendations on the state of related legislation and ways to improve it.



[Extracted from the website of the State Bureau of Investigation](#), September 28, 2022



[Extracted from the website of the State Bureau of Investigation](#), September 28, 2022

¹¹ <https://stopwildlifecrime.eu/resources/national-reports/ukrainian-national-report/>

8. RECOMMENDATIONS

The following recommendations are based on the findings of this report and are aligned with the objectives of the Pan-European Action Plan for Sturgeons¹² and the EU Action Plan against Wildlife Trafficking (EU-WAP)¹³. The new EU-WAP comprises four priorities to be taken by EU institutions and/or Member States to respond to the present challenges in a multi-dimensional way. The objectives are based on four priorities:

1. Preventing wildlife trafficking and addressing its root causes;
2. Strengthening the legal and policy framework against wildlife trafficking;
3. Enforcing regulations and policies to fight wildlife trafficking effectively; and
4. Strengthening the global partnership of source, consumer and transit countries against wildlife trafficking.

8.1. Law enforcement

Coordinated/structured collection of intelligence

It is strongly suggested that all responsible authorities set-up or continue the systematic and detailed reporting of illegal activities and seizures regarding sturgeon. The data structure should be harmonized and shared actively between national agencies. Data should be recorded as completely as possible.

In addition, information on control efforts must be monitored to enable an examination of trends as well as an evaluation of the impact of enforcement measures.

The regular exchange of the data between law enforcement authorities of the Lower Danube countries is encouraged and should serve as a basis for intelligence-led investigations.

Enhanced controls of sturgeon fishing and trade bans

Controls must cover the whole trade chain and include all types of potential poachers and retailers (including fishers, sturgeon producers and intermediaries, shops and markets,

¹² <https://rm.coe.int/pan-european-action-plan-for-sturgeons/16808e84f3>

¹³ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2022%3A581%3AFIN&qid=1667989438184>

restaurants, and online trade). Fishing, domestic and international trades must be rigorously monitored by the responsible agencies.

Inspections must be carried out in cases of reasonable suspicion, but also randomly and unannounced on a regular basis, and should include forensic analysis of samples (see below).

Sufficient resources and capacity building for law enforcement agencies

Effective law enforcement requires sufficient resources for relevant agencies. Adequate manpower, equipment, operational budgets, etc. must be provided. In addition, all responsible agencies need capable and well-trained staff with good knowledge of the complex legal situation, practical experience in the field, and up-to-date information and intelligence.

The deployment of efficient – including new – technologies to detect poaching (sonar, drones, etc.) should be intensified and further investigated.

Regular practical training should be made available to law enforcement officials and targeted information material should support the efficiency of enforcement efforts. Specific training material is available on the WWF website¹⁴ regarding identification of sturgeon species, guidance on how to safely handle sturgeon found in seizures, and on sturgeon trade and caviar labelling¹⁵.

More training material on wildlife crime in general covering legal aspects, prosecution, best practices and enforcement challenges, can be found on the SWIPE website¹⁶.

Inter-agency cooperation and coordination

A number of different law enforcement agencies are responsible for the control of different parts of the trade chain (fishing, transport, aquaculture producers, the processing industry, shops, markets, restaurants, online trade, and international trade). This makes close cooperation essential. National authorities in the region have started to establish formal or

¹⁴ www.danube-sturgeons.org/material

¹⁵ Identification of sturgeon species: <https://danube-sturgeons.org/wp-content/uploads/2020/04/Brochure-Sturgeon-Identification-Guide.pdf>

Guidance on how to safely handle sturgeon found in seizures: <https://danube-sturgeons.org/wp-content/uploads/2020/08/Brochure-How-to-Handle-and-Release-Sturgeon-Safely.pdf>

Sturgeon trade and caviar labelling: <https://danube-sturgeons.org/wp-content/uploads/2018/11/Brochure-Caviar-Labelling.pdf>

¹⁶ https://stopwildlifecrime.eu/?post_type=training_material

informal groups and are encouraged to increase and expand these networks to include all potentially responsible agencies (e.g., sanitary inspection and food safety agencies that control restaurants). Regular meetings and real time information exchange will assist in developing common approaches. This includes prioritizing and focusing enforcement efforts on areas of key concern, and planning and carrying out joint and coordinated controls where those are most needed. Furthermore, agencies can support each other in completing competencies and sharing know-how, capacity and equipment.

Cross-border cooperation and coordination between authorities at EU and international level

The particular situation of Lower Danube states sharing the same sturgeon populations highlights the importance of cross-border cooperation among responsible authorities. This should include regular coordination meetings and exchange of data as well as joint field operations and targeted cross-border enforcement actions. This has already started in the region and should be continued and intensified, particularly in areas where high numbers of cases are found on the other side of the border.

Enforcement agencies should share information about caviar and sturgeon seizures and other findings with the EU and international bodies (EU Enforcement Group, World Customs Organisation, Interpol and EnviCrimeNet¹⁷, CITES Secretariat, national authorities in involved countries of origin, transit or destination). They should also use appropriate information exchange tools for wildlife law representatives, such as EU-TWIX¹⁸. This is of particular importance within the EU as one common market, where products — including illegal ones — can be transferred freely.

A brochure with guidance on the use of EU-TWIX is available for download¹⁹.

State-of-the-art forensic analysis

There is a need for consistent controls of sturgeons and their products, which should – in cases of substantiated suspicion – use genetic and isotope analysis, in order to help detect illegal harvesting and trade, and to guarantee effective monitoring of the sturgeon market chain. These must include sturgeon products that are declared to derive from aquaculture,

¹⁷ <http://www.envicrimenet.eu>

¹⁸ <http://www.eu-twix.org>

¹⁹ Guidance on the use of EU-TWIX: <https://danube-sturgeons.org/wp-content/uploads/2019/10/Brochure-EU-TWIX-Trade-in-Wildlife-Information-Exchange.pdf>

and caviar containers with CITES labels, as the reliability and integrity of these labels and their CITES codes have been found to be flawed.

Since DNA analysis can often not differentiate wild from farmed products, this method must be combined with other techniques such as isotope analysis. Doing so will verify the species as well as the source and geographical origin.

The capacity of national institutions to carry out the required techniques should be analyzed. If no national institution can carry out the tests, the possibility of expanding their profile to be able to do so should be explored. An alternative option would be to have samples analysed in other countries with relevant expertise and resources.

Increased border controls

Relevant national enforcement authorities should ensure that CITES provisions for sturgeon products leaving or entering their country are observed: specifically, that information regarding the species, source (e.g. wild, captive-bred), geographical origin etc. of the product matches those provided on the CITES documents and on the caviar label/packaging; and that forensic techniques (see above) are used to minimize the risk of fraud and illegal trade.

A WWF brochure on CITES labelling requirements²⁰ and a training video²¹ is available.

8.2. Judiciary

Not only do the poaching and illegal trade of sturgeon pose serious threats to the few remaining wild sturgeon populations, but they also impair the costly conservation efforts undertaken by individual states, the EU and conservation organisations. They may also involve fraud, contraband, corruption, forms of organized crime and lost tax revenues for the countries concerned, as well as health and veterinary issues. Wildlife crime targeting sturgeons needs to be taken seriously. Grave cases must be brought to trial and dealt with appropriately, and substantial penalties need to be in place to discourage offenders.

²⁰ WWF brochure on labelling <https://danube-sturgeons.org/wp-content/uploads/2018/11/Brochure-Caviar-Labelling.pdf>

²¹ WWF training video on caviar labelling <https://youtu.be/eU-zsD1rACg>

A publication by WWF summarizes the legal frameworks concerning sturgeon and related crimes (as of 2020) to raise the awareness of the judiciary on this issue and increase the capacity of staff dealing with wildlife crime²².

More information regarding the wider aspects of wildlife crime ranging from legal considerations to prosecution and enforcement can be found on the website of the SWIPE project²³.

8.3. All market actors including consumers


Other actors engaged in the trade in sturgeon, such as fishers, aquaculture operators, retailers of all types, and even consumers should be regularly informed, and their awareness of the issue and of their obligations should be raised. The illegality of selling, purchasing and consuming products from wild sturgeon should be highlighted. Targeted awareness campaigns to reduce the demand for wild sturgeon meat or caviar in the Lower Danube region must be implemented.

8.4. General recommendations for replication

Finally, it is strongly recommended that the collection and analysis of seizure data should be repeated in the Lower Danube region every year. Doing so will help evaluate whether or not the situation has changed, and if the measures that have been implemented have had a positive effect.

²² <https://danube-sturgeons.org/wp-content/uploads/2020/10/Brochure-Legal-Framework-for-Sturgeon-Protection-1.pdf>

²³ https://stopwildlifecrime.eu/?post_type=training_material



**OUR MISSION IS TO STOP
DEGRADATION OF THE PLANET'S
NATURAL ENVIRONMENT AND TO
BUILD A FUTURE IN WHICH
HUMANS LIVE IN HARMONY
WITH NATURE.**

© Tudor Ionescu



Working to sustain the natural world for the benefit of people and wildlife.

together possible. panda.org

© 2023

WWF® and © 1986 Panda Symbol are owned by WWF.

All rights reserved.

WWF, 28 rue Mauverney, 1196 Gland, Switzerland.

Tel. +41 22 364 9111CH-550.0.128.920-7