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THE GREAT CASPIAN CAVIAR GAME

Almost everything we know about sturgeon is steeped in legends and myths that underscore the uniqueness of this extraordinary type of fish. Sturgeons are one of the most ancient representatives of the animal kingdom: they appeared more than 250 million years ago and have so far managed to survive every cataclysm on earth, outliving species of similar age—such as the dinosaurs and mammoths. There is archeological evidence that as long ago as 2400 years B.C., the Egyptians and Phoenicians made salted preserves of black caviar, for use as rations during long sea voyages. Meanwhile in China, a legend has been passed down since ancient times that sturgeon can grow into dragons.¹

The first references to sturgeon and derivative food products can be found in the works of Homer, Herodotus, and Aristotle. One legend states that the peoples of Europe first learned about sturgeon caviar from the voyages of Alexander the Great. His teacher, Aristotle, described ancient feasts at which caviar was served at the victors' table to the sound of victory marches. Claudius Aelianus, a Greek writer in the second century, also wrote about the sturgeon of the Caspian Sea, describing a colossal lake in the land of the Caspians inhabited by huge fish with pointed noises. Scythian tribes who fished sturgeon are mentioned by the Greek historian Herodotus more than 2500 years ago, while sturgeon fishing in the Caspian had already been described in detail by Marco Polo and Adam Olearius, as well as the Arab writer Ibn-Fakih in his *Book of Countries*. Russian fishermen learned to produce caviar as early as the 12th century, and Pope Julius II introduced caviar to royal ceremonies in Europe at the beginning of the 16th century.

It turned out that their enviable longevity served as a guarantee of immortality for these fish, but man's heavy-handed interference throughout history has ensured that sturgeon have all but vanished in most regions of the world. Experts have counted 28 species of sturgeon in the northern hemisphere and, apart from the countries of the Caspian basin, these are also found in Romania, the United States, to some degree in Western Europe (France, Spain, and the northern part of the Adriatic), Ukraine, Turkey, Bulgaria, and China.

Currently, the majority (more than 90 percent) of the world's sturgeon stocks is concentrated in the Caspian Sea basin, but in recent years these stocks have been reduced to a catastrophic extent, and now the population is teetering on the brink of total extinction. This article will examine the problem of the preservation of the sturgeon population; I will analyze the reasons for the current situation and make recommendations that could lead to a solution.

CASPIAN STURGEONS AND SECURITY

There are strong links between natural resources and security, because rapid negative changes involving the loss of livelihoods undermine the sustainability of entire communities,



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increasing the probability of tension and even armed conflict.² The lack of natural resources, dependence on such resources, and the infringement of rights related to their use, as well as environmental marginalization are all typical causes of new conflicts.³ Today, the battle for the Caspian's resources is unfolding at both the international and regional levels. In both cases, we observe distinct causes of this conflict. The Caspian basin's oil and gas riches make the area the object of geopolitics, attracting the attention of the leading world powers, primarily the United States, United Kingdom, France, and China, which are attempting to establish control over these resources and transport routes to world markets. The collapse of the Soviet Union and the formation of the newly independent states in the 1990s led to a transformation of the political situation in the region and opened up access to the energy resources of the former Soviet bloc. The Caspian began to dominate the strategies of both regional and international players.

On the regional level, we can clearly trace a link between regional security and the exploitation of aquatic bioresources. The struggle over these resources could escalate into a conflict between the countries of the Caspian region⁴ or, as was foreseen by Umerserik Kasenov, could evolve into a "sturgeon war."⁵ To date the real "sturgeon war" is taking place between underground networks and law enforcement agencies, and has grown to such a scale that experts predict a biological catastrophe in the very near future. In Dagestan, for example, tensions remain between law enforcement agencies and a significant portion of the population in coastal regions. Multiple clashes have occurred between residents on the Dagestan and Kalmyk coastlines and employees of the Caspian State Marine Inspection, a part of the Caspian Border Agency. The troubles escalated to the extent that a bomb was detonated in a residential building in Kaspiysk (on November 16, 1996), the home of seven border officers.⁶

The depletion of aquatic bioresources is already beginning to threaten the security of the countries of the Caspian basin, and is exacerbating relations between these states. First, the various parties continue to engage in constant disputes and disagreements over the development of general precepts for fishing in the Caspian, environmental issues related to the intensity of oil and gas production on the shelf, and the degree of responsibility for environmental catastrophes.⁷ Additional factors contributing to the tense relations between these states include: periodical boycotting of joint sessions of the Water Resources Committee by certain countries, such as Turkmenistan; mutual accusations of degrading the marine biosystem; ineffective efforts to combat poachers and other illegal organizations; and differing degrees of priority accorded to the preservation of bioresources in the different countries of the Caspian. Disagreements between these states prevent the development of joint approaches to the management and rational use of the bioresources of the Caspian, and to the preservation of the region's biological diversity as a resource of importance to the whole world. These complex interrelations are further complicated by the indeterminate status of the Caspian Sea itself.

The degradation of marine bioresources also has serious economic consequences for the coastal areas of the Caspian countries, for which fishing (mainly poaching) is the only source of income, and for the countries themselves, which cannot tap a colossal source of income due to the impossibility of legally exporting caviar.

STURGEON WARS

The Caspian basin is home to six species and one subspecies of sturgeon (*Acipenseridae*): beluga (*Huso huso*), ship (*Acipenser nudiiventris*), sterlet (*Acipenser ruthenus*), osetr or Russian sturgeon (*Acipenser gueldenstaedtii*), Persian sturgeon (*Acipenser persicus*), sevruga or stellate sturgeon (*Acipenser stellatus*), and the South Kura River sevruga or stellate sturgeon (*Acipenser stellatus stellatus natio cyrensis*).⁸ Throughout the entire history of Caspian fishing, the sturgeon catch has fluctuated significantly, depending on the level of restocking efforts and the intensity of fishing.⁹ At present, virtually all species and populations of sturgeon in offshore and freshwater areas of the Caspian basin are in sharp decline, due to a combina-

tion of man-made and natural factors, primarily poaching, as well as changes in sea level and available food sources.¹⁰ The average annual sturgeon catch in the Caspian basin during the 20th century has changed (measured in five year periods) from 32,000 tons in 1900-1905, falling to 7,000 tons in 1940-1945, before growing to 20-25,000 tons in 1975-1985, and once more falling rapidly to 1,100 tons in 2001-2005.¹¹

The most lucrative sturgeon food product—and the reason for the decimation of the sturgeon population—is the world-famous *black gold*, caviar, a unique food item, for many years synonymous with the phrase “*Russian caviar*.” While the word “caviar” can be applied to any fish eggs, only the roe of sturgeon is true *caviar*. The most valuable is beluga caviar, followed by ossetra caviar, with sevruga caviar in third place. The wholesale price of one kilogram of beluga caviar in Western Europe and the United States is somewhere between U.S. \$2,000 and \$3,000, while some batches can be as expensive as \$10,000. Restaurant prices are 50-100 percent higher. Ossetra caviar, as a rule, is about half the cost of beluga (up to \$1,500 per kilogram), while sevruga caviar costs slightly more than \$1,200.

The First Sturgeon War: from ancient times to late 20th century

This period in the battle against sturgeon began in the 12th century, when caviar production began on the Volga River. During the time of the Golden Horde, Astrakhan Tatars came up with the idea of blocking rivers with so-called *uchugs* to stop the sturgeon from reaching the Russian side. An *uchug* is a form of log fence laid across a river, blocking a migration path used by the fish, and is the most ancient and barbaric form of catching fish. Industrial-scale catches can be said to have started during the time of Ivan the Terrible, and coincided with the escalation of poaching on state and local levels. Fishing was performed using methods that not only ensured generous catches of fish, but also frequently damaged fish stocks. *Uchugs* and hooks, often used to catch fish, caused widespread physical damage, leading to the illnesses and death of fish (these methods were later forbidden, with good reason). This is the same period when unrecorded catches and poaching began. Sturgeon were supplied to the tsar’s table from this time forward; under a decree of Tsar Aleksei Mikhailovich, up to 1,500 live sturgeon were shipped to Moscow every year. On January 6, 1704, Peter the Great decreed a state monopoly over the fishing industry, after which sturgeon was traditionally seen as the *Tsar’s fish*, a tradition that survived in Russia virtually until the Russian revolution.

During the Soviet period, industrial growth led to the appearance of large volumes of hazardous waste, which was dumped into bodies of water and also led to reductions in the stocks of aquatic resources. Hydropower construction projects on the Volga, Terek, and Kura rivers led to losses of sturgeon spawning grounds and sharply reduced the scale of natural reproduction. However, the problem of falling populations was partially resolved by the construction and operation of sturgeon hatcheries, which bred young fish for subsequent release at sea; the problem was further helped by a temporary (three-year) moratorium on all fishing. Such a luxury could only be afforded by the Soviet Union, which had a state monopoly on fishing and rigidly controlled all aspects of sturgeon production and conservation. Nevertheless, this period was followed by another collapse in the numbers of sturgeon stock, when fishing targeted the smaller broods of 1975-77 (periods during which the Volga reservoir cascade produced relatively small amounts of water and low sea levels were observed), while poaching on rivers and at sea exceeded the scale of industrial fishing.¹²

The Second Sturgeon War: USSR vs. Iran, 1986-91

In the 1960s and 1970s, pollution of the Volga and Caspian basins began, as discharges of oil products, and industrial and domestic waste water rapidly increased until 1987-88. As a result, during this period (especially in 1988), the mass death of sturgeon was observed in the Volga, downstream of Volgograd, due to the dumping of poisonous substances. Sturgeons were found to suffer from myopathy, an illness that damages muscle tissue, the liver, roe, and milt.



It was during this period that Iran commenced a policy of unofficial competition with the Soviet Union on the international market. The U.S. market was closed to Iran, while Russian caviar then dominated the European market. Taking advantage of the openness of the Soviet mass media during perestroika, when many media outlets covered the environmental situation on the Volga River, numerous articles and features appeared in Western Europe about the disadvantages of Russian caviar, compared to the superlative qualities of Iranian product.¹³ Iran then began to increase the supply of caviar to the European market—naturally, by increasing fishing volumes—an act that can be qualified as state-sponsored poaching. Meanwhile, the Soviet Union was exploiting fish stocks no less rapidly, although its activities were compensated for to some degree by the work of hatcheries and large-scale releases of young fish.

The end result was that this period became one of state-sponsored poaching by Iran and the Soviet Union, with each country vastly reducing sturgeon stocks. One of the consequences of these battles—Iran’s aggressive marketing policies and the inaction or clumsy, ill-considered policies of Soviet bureaucrats—was the tarnishing of the “Russian caviar” brand, and the appearance of a new brand, “Iranian caviar.”

The Third Sturgeon War: 1991 to the present

For more than 60 years, the Soviet Union and Iran (monitored by its northern neighbor) consistently produced and exported sturgeon to the world market, ensuring the preservation of fish populations (periodically reducing and re-developing stocks). This situation sharply changed in the post-Soviet period, when five countries appeared overnight in the Caspian basin and only one country—Iran—retained a state monopoly over sturgeon fishing. According to the World Wildlife Fund, world stocks of sturgeon have fallen by 70 percent over the last 100 years, while poaching vastly exceeds legal fishing levels—by a factor of 10-12 both in the Caspian and Volga basins (according to 2002 data).¹⁴ According to the director of the International Sturgeon Research Institute of Iran, Mohamed Purkazemi, the latest study of sturgeon populations in the Caspian showed that stocks have depleted rapidly and in the last year alone have fallen by 30 percent (2005).¹⁵

Table 1. Comparison of Sturgeon Stocks and Catches in the Caspian Basin¹⁶

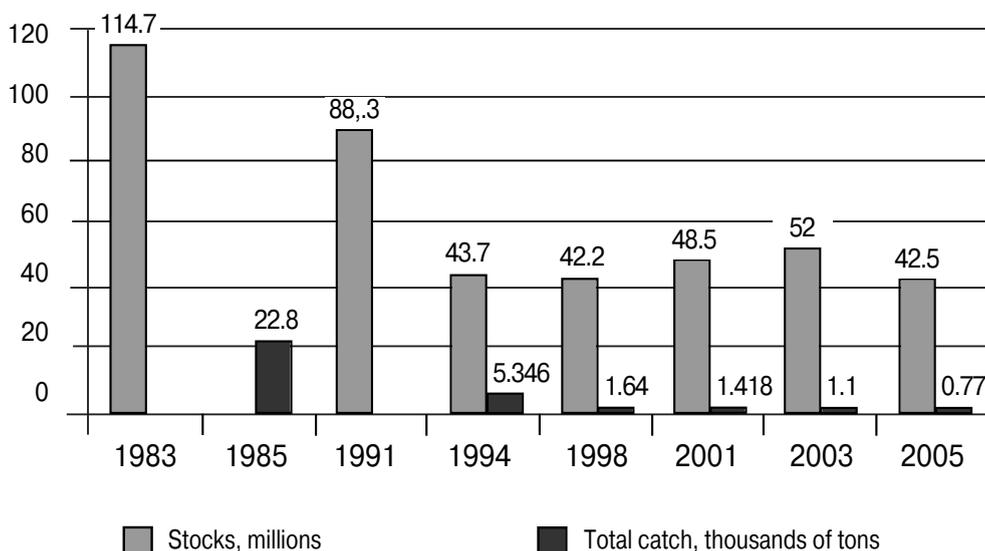
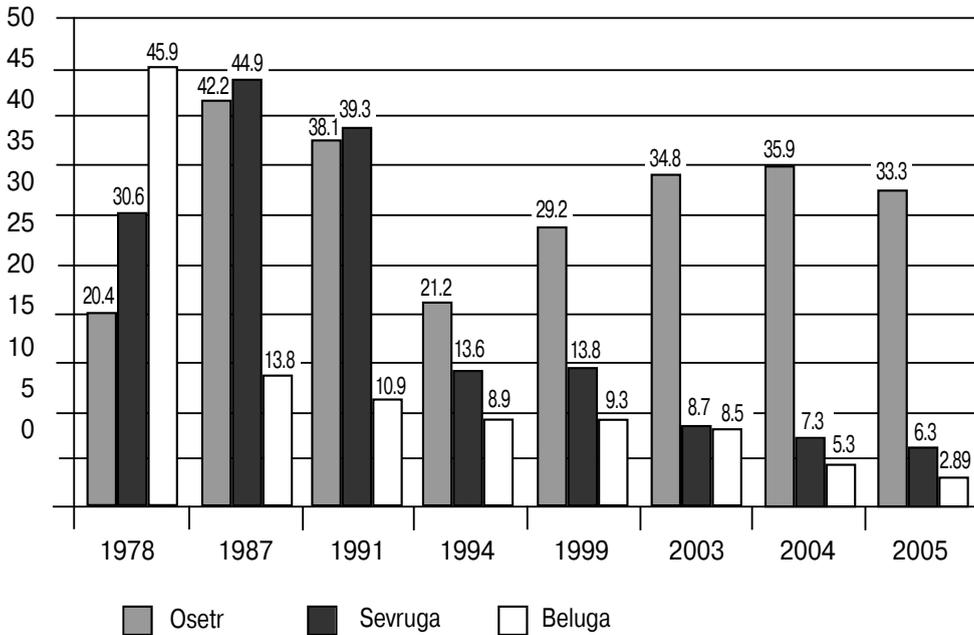


Table 2. Number of Sturgeon in the Caspian Basin (in millions)¹⁷



In addition, several new factors have also appeared that have placed sturgeon under the threat of extinction:

- ❑ Budget crises, new political priorities, and complex economic realities all immediately affected the sturgeon restocking programs of each of the four Caspian countries that were formed out of the territory of the former Soviet Union. Hatcheries have found themselves on the brink of closure due to insufficient funding and have greatly reduced the output of young into the Volga and the Caspian, thus disrupting the balance once maintained by the Soviet Union to reduce damage to populations from the construction of dams and the influence of other man-made factors.
- ❑ The volume of exploration and oil and gas field development on the shelf has rapidly expanded and, as a result, the total pollution of the Caspian and rivers that feed this body of water with industrial waste from plants equipped with ineffective waste purification systems). In turn, the pollution of habitat and spawning grounds has led to illnesses in sturgeon, which have been recorded by scientists. The leading pollutant of this sea is, without a doubt, oil. Oil pollution suppresses the development of phyto-benthos and phytoplankton in the Caspian, which consist of blue-green and diatomous algae, reducing the oxygen output and causing the mass death of fish and other organisms, adversely affecting the sturgeon population. Moreover, ballast water released from oil tankers from the Black Sea have brought invasive species (such as the Western Atlantic ctenophore, *Mnemiopsis leidyi*, a form of jellyfish) that are now rapidly multiplying in the Caspian, and by doing so are undermining the available food reserves of one of the sturgeon's main staples, Caspian kilka. Mass deaths (40 percent of the total population), in part due to the injection of invasive species, have complicated the dramatic situation in the Caspian, and have for the first time caused the scientists of the Caspian countries to realize that they are facing a new type of threat. Another factor has been the sudden ejection of hydrogen sulfide from the bed of the Caspian Sea, killing many



species of Caspian fauna, including kilka, and radically disrupting the entire marine ecosystem.

- ❑ The rising level of the Caspian Sea has led to the flooding of oil wells that were already polluting enough to generate an environmental catastrophe. Further rises in sea level are likely to lead to irreversible consequences for the ecology of this body of water and the region as a whole. The rising sea level, taken on its own, is not an environmental catastrophe and does not pose a threat to the sturgeon population; the greatest amount of harm is inflicted by industrial activity. The level of the Caspian has always fluctuated, and these fluctuations are a normal result of the unstable condition of an enclosed body of water with variable conditions at its natural boundaries.¹⁸ Rapid changes in sea level have created temporary, unfavorable conditions for sturgeon stocks (as levels fall), but these stocks have quickly overcome the temporary deterioration of their habitat.¹⁹
- ❑ The pollution of the sea by radioactive waste has led to an increased uranium content in sea dwellers, of five times that observed in other waters.²⁰
- ❑ The indeterminate legal status of the Caspian Sea is the main problem slowing the passage of an agreement between the Caspian countries to protect the marine bioresources of the Caspian basin as a whole, and the sturgeon population in particular. Following the formation of the new Caspian countries in the early 1990s, it became clear that the Russian-Iranian agreements of 1921, 1935, and 1940, which regulated the status of the Caspian, do not reflect current geopolitical realities. The issue of the new status of the sea has remained unresolved for 15 years, as the countries have been unable to reach agreement about the size of the sovereign zone of each state, the development of hydrocarbons and bioresources, as well as standards of nature preservation and fishing, and the level of responsibility for pollution of the Caspian. Until the status of the Caspian is determined, all countries are observing the Soviet-Iranian agreements, under which Russia, Kazakhstan, Turkmenistan, Iran, and Azerbaijan enjoy sovereign rights to a 10-mile zone, and equal rights to the resources in the remainder of the sea. As a body of water, the Caspian Sea is closed to countries—and companies within such countries—that do not have a natural means of access to the basin.
- ❑ The main reason for the death of fish populations continues to be internationally organized poaching that recognizes no borders and enjoys a high level of technical sophistication.

Now imagine that all of the above factors are multiplied by the consequences of intense economic development in the Caspian countries, the development of a project to lay a gas pipeline along the Caspian Sea bed, the widespread corruption permeating national authorities, and a high level of organized crime. The combined impact of these factors is causing the catastrophically fast, mass extinction of sturgeons, resulting in colossal economic losses for the Caspian countries. According to the executive director of the Sturgeon Harvest and Production Association (APDVO), Valery Paltsev, the financial losses of the Caspian countries due to reduction of sturgeon catches in 1996-2005 exceed U.S. \$10 billion.²¹ Strictly speaking, these losses are due both to smaller catches and to illegal sturgeon fishing—estimated to total 90,000 tons, or U.S. \$6.8 billion, over the same ten-year span for the entire Caspian basin.²²

SAVE THE STURGEON!

At present, the main international agency working to save the sturgeon is the Convention on International Trade in Endangered Species of Wild Fauna and Flora, or CITES, which has included all sturgeon species in Appendices I and II since 1998 (just four species were covered up until 1997).

The Role of CITES

Both for private individuals and for companies exporting and importing sturgeon products, this means that international trade in sturgeon products, including caviar, must be performed in compliance with the rules determined by the Convention. Under the system controlled and maintained by the national managerial and scientific authorities of CITES, caviar shipped for export must possess a document of permission, while containers must bear special labels that identify the country of origin, the fish species from which the product is derived, the year of preparation, the type of caviar (*wild*, i.e. from nature, or from aquaculture), the number of the manufacturing enterprise, and the identification number of the shipped batch.

Exporter countries annually inform the CITES Secretariat of measures taken to preserve populations and jointly reach agreement on the predicted size of export quotas for sturgeon products in the following year. The CITES Secretariat, in turn, can accept these quotas, which is indicated in the official publication on the organization's website. Alternatively, it may decide not to publish the quotas, if the report presented by each country on planned measures and actions aimed at preserving sturgeon is considered to be unsatisfactory. CITES rules also restrict the export and import of black caviar for personal use to 250 grams per person.

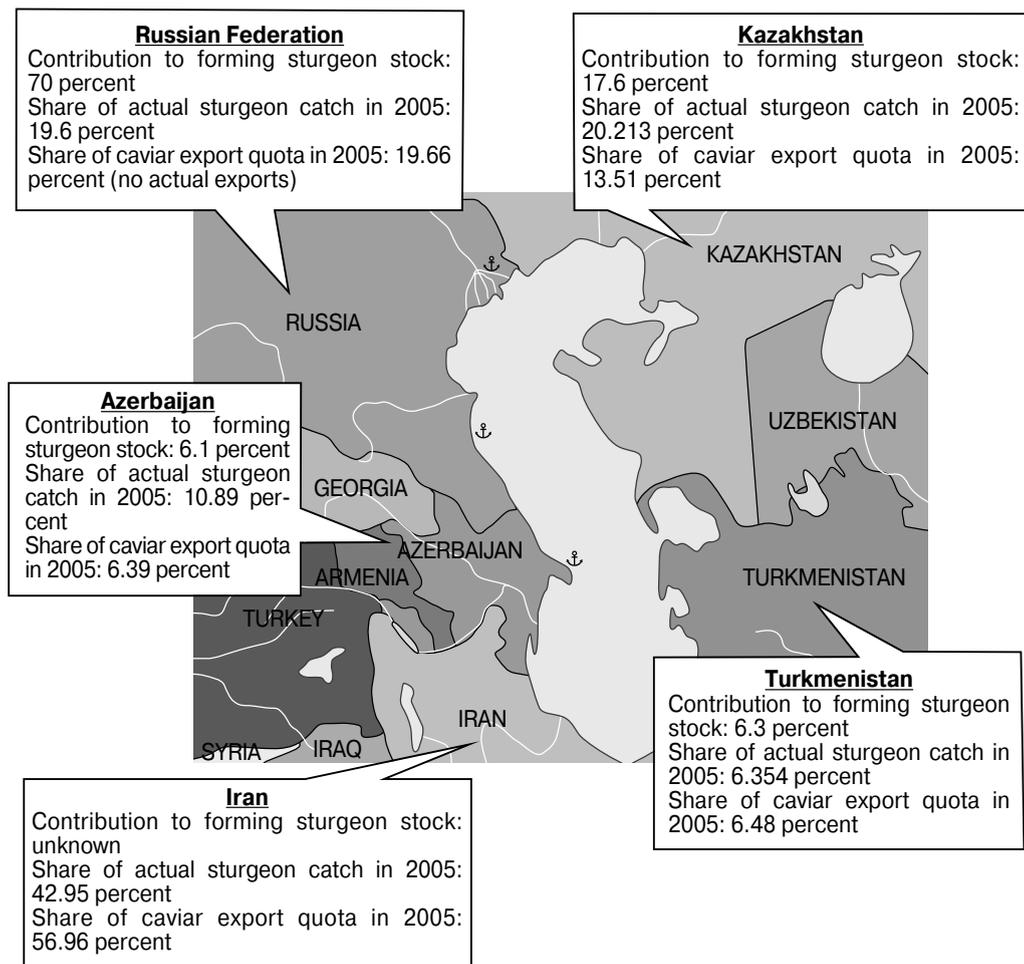
At the CITES Conference of the Parties in 2000, it was resolved to introduce a standard, unified system of labeling caviar for export.²³ In 2001, CITES initiated a summit followed by the signing of the so-called Paris Agreement, which obliged Russia, Kazakhstan, Azerbaijan, and Turkmenistan to take urgent measures to prevent a fall in sturgeon stocks in the Caspian. As yet, none of these countries has succeeded in meeting the recommendations of this agreement, which stipulate a collective approach to the problem, combating poaching and illegal trade, regulating sales of sturgeon products on the domestic market, and the introduction of standardized product labels.

Each year, CITES publishes quotas for caviar exports from the Caspian countries based on information submitted by these countries to the secretariat on the sturgeon population, on work to ensure the preservation of sturgeon, and on measures enacted to counteract poaching. In January 2006, CITES announced that it would temporarily cease publishing caviar export quotas for the Caspian countries, as they had failed to submit information to the secretariat about caviar volumes from illegal sources.²⁴ In 2006, the CITES Secretariat published the export quota only for Persian sturgeon from Iran (the volume was 44.3 tons instead of the 51 tons requested by Tehran), thus recognizing that Iran had met all the recommendations of the Paris Agreement and Resolution 12.7.²⁵ This provoked ichthyologists in the four remaining Caspian countries to voice doubts, disagreeing with the decision by the CITES Secretariat to declare Persian sturgeon an endemic species. In the publication, there was no *zero quota* for the other four species of sturgeon produced by this country, just as there were no *zero quotas* for any of the other countries. It must be noted that only a *zero quota* is equivalent to a complete ban on exports. The position thus taken by the secretariat does not facilitate the consolidation of the Caspian countries, instead engendering major concerns among the leaders of these states.²⁶

On January 2, 2007, the CITES Secretariat lifted the ban for caviar export quotas (for osetr and sevruga) from Russia, Turkmenistan, Kazakhstan and Azerbaijan after the four countries submitted all required documentation. According to the quotas published by the CITES Secretariat, in 2007 Russia can export 23,5 tons of caviar, Turkmenistan – 2,33 tons, Kazakhstan – 11,57 tons, and Azerbaijan – 6,36 tons.²⁷ Ban for beluga export quotas remains for all Caspian states as the information provided by five states is not yet complete, and a final decision of the CITES Secretariat regarding this issue will be made in coming months. According to CITES, the Caspian states agreed to reduce combined catch quotas for the six sturgeon species by 20 percent compared with 2005, and combined quotas for caviar exports in 2007 are 15 percent lower than in 2005.²⁸



Map 1. The Actions of the Caspian Countries to Preserve Sturgeon



Russia

In 1992, Russian President Boris Yeltsin signed a directive, in Astrakhan, entitled *On Measures to Protect the Sturgeon Fish Species of the Caspian Sea Basin*. This document became the basis for a long-term program to restock, preserve, and increase the number of sturgeons, which has already been partially implemented.²⁹

Russia plays a leading role in restocking sturgeon, as it releases 50-55 million beluga, osetr, and sevruqa young, raised by eight hatcheries in Astrakhan, the caviar capital of the Caspian.³⁰ Throughout all of their years of operation (including 2006), these fish farms have released more than 1.2 billion sturgeon young. As a result, more than 90 percent of beluga, more than 60 percent of osetr, and about 50 percent of sevruqa derive from artificial restocking by Russian sturgeon hatcheries.

Because of their strong ability to adapt, sturgeons have evolved a capability to maintain sufficient population numbers, despite varying natural conditions, to compensate for natural losses and fishing catches, and for this reason the Caspian basin remains one of the country's important fishing resources. Despite notable achievements in population preservation, sturgeon catches by Russia continue to fall: if in 1990 almost 12,000 tons of sturgeon were caught and more than 100 tons of caviar shipped for export, in 2000 just 470 tons of fish were caught,

and just 25 tons exported, according to official reports. In 2000 the industrial fishing of sturgeon was halted, and only accidental catches were permitted when fishing for other species of river fish; then, in 2005, accidental catches were also forbidden. Currently, sturgeons are caught for reproductive and research purposes.

Despite official announcements and directives, Russian stores have continued to offer various sturgeon products without any interruption. According to Robert Moiseyev, director of the Pacific Institute of Geography at the Russian Far East Academy of Sciences (Petropavlovsk-Kamchatsky), the trade in caviar and fish has grown into a multi-level, underground system that spans several economic sectors:

“...there are those that catch the fish, a second group that prepares them, while others are in charge of refrigerator storage; a fourth group takes it to the aircraft, where a fifth group flies the plane, then a sixth group accepts the goods outside Moscow, where the main fish processing plants are. There are people who maintain these plants, people who sell the product, and someone is giving them all ‘protection.’”³¹

Russia, according to modest estimates, loses up to U.S. \$400 million each year to poaching while even Turkey, which has no stocks of sturgeon, has overtaken Russia in the export of this delicacy.³² The Russian Interior Ministry estimates that black market income from the illegal production of caviar and sturgeon fish is comparable to the profit from the illegal drug trade.³³

Poaching exists in all three federal subjects of the Russian Federation with access to the Caspian: Dagestan, Kalmykia, and Astrakhan oblast. The fishing in the first two is conducted at sea, with poachers working not only along their *own* coastline, but also penetrating neighboring waters, including those of Kazakhstan, traveling far to the east of their own shores. Special high-speed vessels, often so-called “cigarette boats,” fitted with imported outboard motors and satellite navigation systems make it possible in good weather to reach fishing areas within a matter of hours. In Astrakhan oblast, poachers work in the same way both on rivers, usually using small boats, and at sea, deploying the same methods as poachers from Dagestan and Kalmykia. It is almost impossible to say which of the above areas deserves the gold medal for illegal poaching, although an analysis of news reports in the regional and federal media indicates that law enforcement agencies most frequently detain citizens of Dagestan and Kalmykia.

The main problem in the Russian approach to preservation of sturgeon and making money from the export of sturgeon is, without a doubt, state bureaucracy, corruption, and the apparent low priority of this issue in federal politics. Despite numerous declarations by the authorities concerning the need for urgent reforms in the fishing industry as a whole and sturgeon fishing in particular, very little has actually been done.

Nevertheless, some of the prerequisites for improving the situation have been created in the last two years.

First, the CITES Management Authority of the Russian Federation for Sturgeon was founded in September 2005; this agency is responsible for observing CITES procedures and is currently under the jurisdiction of the Ministry for Agriculture and Rosselkhoznadzor, the Russian Agriculture Inspection Agency. It is hard to believe, but due to bureaucratic delays in the creation of this structure Russia was unable to export black caviar for several years, thus losing a major income stream.³⁴ According to Lidiya Vasiliyeva, the director of the BIOS Research and Production Center for Sturgeon Breeding, the reason for this is strictly bureaucratic in nature:

“In Bulgaria, for example, where there already is a CITES agency, it takes about half a day to obtain a license and export caviar across the border. But I need to get through 12 agencies, which takes two full months. Although we have a breeder stock, there is nothing we can do. As a result, Russia is losing one of its national treasures.”³⁵



Second, on January 1, 2005, a new federal law was enacted, entitled *On Fishing and the Preservation of Marine Biological Resources* (until then, there had simply been no such law!). Russian parliamentary figures also developed a bill for a model law on the preservation of sturgeon for member countries of the CIS Interparliamentary Assembly. According to Gennady Gorbunov, chairman of the Committee for Agrarian and Food Policy of the Federation Council (upper house) of the Russian Federal Assembly and one of the authors of the bill, the passage of this law is the first step toward a consolidation of legislative efforts by individual states to manage the marine biological resources of the Caspian and Azov Seas. In addition, Russian President Vladimir Putin signed the federal law *On the Acceptance by the Russian Federation of the Charter of the Food and Agricultural Organization of the United Nations*, initiating Russia's official accession into this international organization, which plays an important role in world fishing.

Third, a series of draft regulatory documents have been prepared, governing activities that affect the sturgeon family.³⁶

Finally, measures to prevent pollution of the Russian part of the Caspian Sea are being tightened. In July 2006 the Federal Inspection Service of the Russian Ministry for the Use of Natural Resources announced that it intends to apply a set of measures to prevent the pollution of the Russian part of the Caspian Sea, due to increased shipping of oil and oil products by states sharing borders with Russia. Ministries and agencies will be requested to provide information about the organization of a system of safe oil and oil product shipping by neighboring states, about vessels used to transport hazardous wastes through bodies of water adjacent to Russia's borders, as well as information about the ownership of oil that could cause irreparable damage to the environment of Astrakhan oblast, Kalmykia, and Dagestan if it were to be released into the Caspian Sea.³⁷

Azerbaijan

Azerbaijan is the second largest producer of artificially raised sturgeon after Russia, boasting hatcheries with the capacity to release 30 million fish annually. The first ever sturgeon hatchery was built in Neftchalin district, on the Kura River, in 1954, where biotechnical standards for the artificial breeding of sturgeon were developed as a result of scientific research by world-renowned scientists after a decade-long period of experimentation.³⁸ Such facilities were subsequently constructed on the Volga, and shortly after that were built in Iran and Kazakhstan. According to Azerbaijani Minister for Ecology and Natural Resources Husein Bagirov, during the years when these three sturgeon hatcheries were active in Azerbaijan and the Caspian Sea, more than 200 million young sturgeons were released into the Caspian. In addition, in 2003 a loan from the World Bank to Azerbaijan was used to build a modern sturgeon hatchery with a planned annual capacity of 15 million young.³⁹ At the current time, this is the most modern sturgeon fish farm on the Caspian, and Azerbaijan's fourth. Official data record the total release from all hatcheries in Azerbaijan as 16.89 million sturgeon young with an average weight of 1.2 grams and standard weight of 3 grams.⁴⁰ Given this data, Azerbaijan insists on an increase in its annual fishing quota, which is established by countries based on the national contribution to restoring the sturgeon population.⁴¹

As in Russia, the central problem continues to be poaching, despite the existence of laws: the law *On Fishing* (1998) and the resolution *On the Protection of Sturgeon Species* (1998). The volume of income from Azerbaijani exports has not been officially published, but judging by local media reports, trade in sturgeon in Azerbaijan is controlled by organized crime. Rauf Gadzhiyev, head of the Department for the Preservation of Sturgeon Species at the Azerbaijan Ministry for Ecology and Natural Resources, believes that poaching makes up 10 to 15 percent of the total fishing volumes in the country.⁴² According to 2006 data, the police were preparing new vessels for fishing inspection work; law enforcement previously had just one vessel to enforce the law *On Fishing*.⁴³

Azerbaijan has intense offshore exploration and drilling, on a similar level to Kazakhstan, causing widespread oil pollution in the vicinity of Baku Bay and the coastal regions of Azerbaijan. The main problems continue to be the contamination of marine resources, including trans-boundary waters, as well as air pollution and the loss of biodiversity.⁴⁴

Iran

At the current time Iran is the official world leader in the caviar market, and this activity is a stable source of income for the country. This is a relatively recent phenomenon (beginning in about 1980).

The development of Iran's caviar business only began in the 20th century, in many ways as a result of actions by the Soviet Union. On October 1, 1927, the Soviet-Iranian Treaty of Assurances and Neutrality was signed in Moscow, and was accompanied by an agreement about the use of fishing areas off the southern coast of the Caspian Sea. Under this agreement, Russia received the right to produce fish resources, including sturgeon, in the southern part of the Caspian Sea. It was then that Iran's largest fishing enterprise, Shilat, was founded, from the remains of a Russo-Persian company that had existed from the 1920s to the 1940s. One should note that Iranian caviar experts learned their profession from Russian caviar masters.

Iran had no tradition of sturgeon production or caviar consumption, which can largely be explained by a religious ban on eating sturgeon and caviar. According to the Islamic faith, sturgeon are scaleless fish, making them "dirty," like pork, and cannot be used as food. During the reign of Shah Pahlavi of Iran, especially in 1960-70, Iran secured the sovereign right to the production of sturgeon in the southern part of the sea, which was accompanied by the freedom to consume sturgeon and caviar. The situation changed radically after the 1979 revolution, when the new government banned the consumption and production of caviar, declaring it *haram* (an action categorically banned and condemned under Islamic law). However several years later, recognizing the importance of this source of income for the country's isolated economy, Ayatollah Khomeini made a special resolution that granted permission to *true believers* to consume products made from these fish, and to produce caviar.⁴⁵ However, religious traditions turned out to be stronger, and prevented the consumption of these products from becoming a mass phenomenon. Caviar was virtually never consumed by the general population in Iran; 89 percent of the caviar was exported to the international market, while just 11 percent was consumed on the country's small domestic market.⁴⁶

Iran is the only one of the Caspian countries to be able to retain a state monopoly over sturgeon fishing. The problem of poaching exists here, too, although the scale is far smaller than in other countries. Of all the Caspian countries, only Iran traditionally fishes sturgeon at sea, while the remaining countries of the Caspian region formally continue to observe the fishing rules established in 1962 in the Soviet Union, and reinforced by order of the USSR Fishing Industry Ministry in 1984. These rules ban the fishing of sturgeon in the Caspian Sea; catches are taken from the rivers where spawning migration occurs. Iran (just like Turkmenistan) has no such rivers, and so the contribution of these states to the formation of sturgeon stocks by means of natural spawning is extremely limited. Each year, Iran releases about 10.5 million young, and in 2005 released 15.1 million young. Nevertheless, to date Iran has failed to present information that would make it possible to determine its contribution to the formation of resources (although the country is actively participating in the discussion of methods to come up with such a definition.⁴⁷)

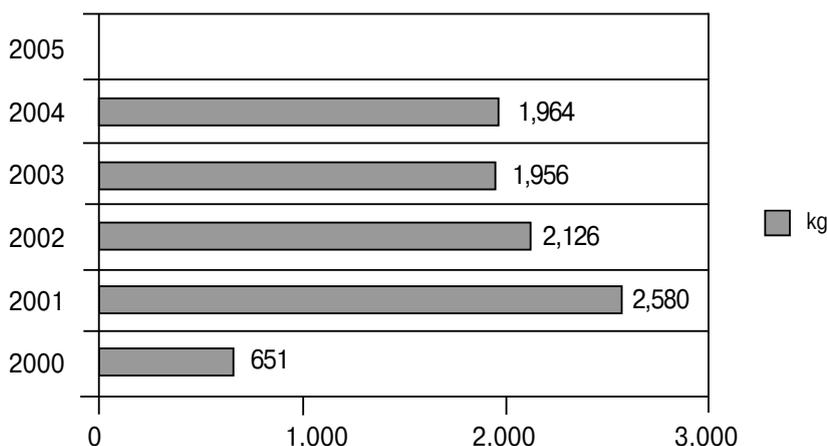
Pollution in the Caspian remains a problem, partly due to the proximity of a large number of Iranian industrial plants, mines, and the flow of polluted industrial, city, and agricultural waste water into the sea.

At present, Iran is the sole exporter of caviar from the Caspian region to the world market, and maintains a stable level of exports to Europe, the United Arab Emirates, and the United



States. For a long time, up to 70 percent of U.S. sturgeon caviar imports originated in the Soviet Union (and, subsequently, from Russia). Despite the trade embargo against Iran, Iranian caviar has always been shipped to the United States. For example, since 1991 approximately 500 kg of Iranian caviar reached U.S. markets from Europe.⁴⁸ The U.S.-Iranian caviar business was reestablished just 21 years after the Islamic revolution. On March 17, 2000, Secretary of State Madeleine Albright announced that the United States would remove the ban on importing food products from Iran, including caviar.⁴⁹ From that moment, regular, direct shipments of Iranian caviar to the U.S. market began, while supplies of re-exported caviar from France, Switzerland, and, until recently, from the United Arab Emirates, continued. For example, according to data from the Iran Fishing Organization, in just the first 11 months of 2004, caviar exports to the United States grew by 48 percent over 2003, and amounted to 3.5 tons, worth U.S. \$2.6 million.⁵⁰ The export of caviar to the United States by the remaining Caspian countries during this period amounted to 2.1 tons (U.S. \$0.49 million) from Russia, 1.8 tons (\$0.75 million) from Kazakhstan, and 1 ton (\$0.44 million) from Azerbaijan.⁵¹ The data in the CITES database are somewhat more modest:

Table 3. Caviar Exports from Iran to the United States (2000–2005)⁵²



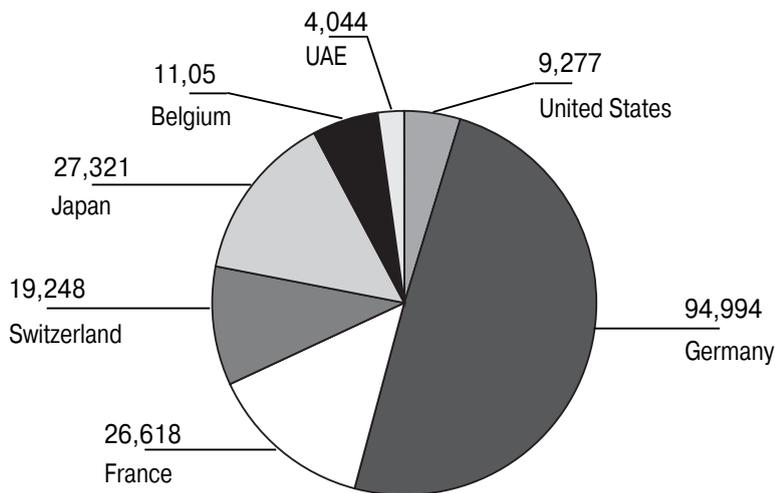
Note: In 2005 there were no exports of Iranian caviar to the United States due to a ban on imports imposed by the U.S. Fish and Wildlife Service.

There are concerns that the stability of these exports may be affected by the unpredictable situation related to Iran’s nuclear program and further tightening of international economic sanctions. Even if *caviar sanctions* are not introduced by the UN Security Council at a certain point, they may be unilaterally imposed by the European Union.

In 2006, only Iran (of all the Caspian countries) was permitted by a resolution of the CITES Secretariat to export the caviar of Persian sturgeon, which elicited a negative reaction from the other countries of the area. If European Union sanctions are applied, then supplies of even this caviar to the countries of the European Union and the United States may cease, leaving Switzerland as the only country in Europe that will be able to purchase these products. Meanwhile, Switzerland could apply its own sanctions, similar to those of the European Union. This would not be unexpected; in 2006 Switzerland’s largest banks, Credit Suisse and UBS, voluntarily ceased operations with Iran, believing that if the situation deteriorated, bank

losses on the U.S. market far exceed possible profits in Iran. For this reason, it is entirely possible that the same logic may be followed by the Swiss government where European sanctions are concerned. If sanctions are applied, Switzerland may temporarily cease purchases of caviar from Iran, totally isolating the country on the Western caviar market. It is Switzerland that was a traditional Western center for the import and export of caviar, consuming eight tons of caviar each year on its domestic market.⁵³ Were events to unfold in this manner, Iran may be able to re-focus its export on the Mideast and Asian markets. In any case, sanctions will not hurt Iran. In fact, the opposite is likely: Iran will essentially be applying *caviar sanctions* against Europe and the United States, with western companies incurring economic losses.

Table 4. The Largest Importers of Iranian Caviar, 2000-2005⁵⁴ (in metric tones)



Kazakhstan

Kazakhstan has two large fish hatcheries (Atyrau and Ural-Atyrau), each of which is capable of breeding up to 3 million larvae, helping the country release 6.71 million young annually. Since 2001, Kazakhstan has been implementing a project to artificially breed sturgeon in lakes and ponds. Within a period of 18-24 months, depending on the food sources available, the fish are raised to market condition (1.5-2 kg) before delivery to Kazakh markets.⁵⁵ One of the successes of Kazakhstan has been the creation in the town of Atyrau of the Caspian Ecology Monitoring Center, which works in close cooperation with an analogous center in Astrakhan. According to Astrakhan Oblast Governor Alexander Zhilkin, a joint project is being organized between two oblasts—Astrakhan and Mangystau—with Astrakhan experts playing a leading role.⁵⁶

Kazakhstan is facing similar problems to those of Russia, Turkmenistan, and Azerbaijan, and is attempting to counteract poaching by strengthening legislation. In 2006, the Kazakhstan parliament ratified an agreement between the governments of Kazakhstan and Russia on the activities of their border representatives. This document stipulates intensifying the battle against poaching in the Caspian Sea, and the possibility of traveling within the territory of adjacent countries using special written permission that would provide for an expedited entry regime.⁵⁷

The key problem in Kazakhstan remains oil pollution at sea, due to the intensity of oil development projects on the offshore shelf. The situation in the vicinity of Kazakhstan oil fields—the largest in the Caspian—is unquestionably critical. Aytkul Samakova, the Kazakhstan environment minister, has announced that despite the measures taken, nature protection expenditures lag behind the growth in hydrocarbon extraction.⁵⁸ Of particular concern are 85 flooded oil and gas wells in the Caspian coastal zone, from which oil is now seeping. So far, only five of these have been eliminated. As a result, mass deaths of sturgeon and seals were observed in the Kazakhstan sector of the North Caspian in May 2006. In addition, the predicted increase in oil production on the Kazakhstan shelf will lead to an increase in the volumes of environmental pollution by oil products, by a factor of 2.5 (12,500 tons annually), while the volume of pollution in the Caspian by all the Caspian countries could reach 30,000-40,000 tons each year.⁵⁹

Turkmenistan

The total permissible catch of sturgeon for Turkmenistan is the lowest of all: 6.3 percent of the total for the entire basin, proportionate to the contribution of that country to sturgeon restocking. Due to the absence of spawning rivers, Turkmenistan does not possess the capability to produce sturgeon on its territory. As was indicated above, according to Soviet fishing rules (the new Caspian countries agreed to observe these rules in 1992), Turkmenistan does not have the right to catch these fish at sea. According to agreements signed at the Commission on Aquatic Bioresources of the Caspian Sea, sturgeons are fished in the rivers of Russia and Kazakhstan as part of Turkmenistan's share. In Turkmenistan the construction of the first plant ever to artificially breed sturgeon and to produce caviar is under way. The construction tender was won by Florida Sturgeon Engineering (of the United States). Former Turkmenistan President Saparmurat Niyazov approved a resolution by the tender committee and gave permission to the state fishing committee of Turkmenistan for an investment contract for the planning and construction of a system with a production capacity of up to three tons of caviar, one hundred tons of market-condition sturgeon, and five million young sturgeon each year, worth U.S. \$16.9 million (project completion was slated for the end of December 2006).⁶⁰

The poaching situation remains critical: the Turkmenistan authorities have absolutely no control over illegal catches of sturgeon.⁶¹ Sturgeon poaching in the southern part of the Turkmenistani region of the Caspian is widely practiced by fishermen bearing licenses to catch other species of fish. However, the technical resources of local poachers are inferior to those from Azerbaijan, Russia, and Kazakhstan, and do not extend to rapid vessels fitted with navigational devices. Moreover, there is little or no evidence of organized crime groups in Turkmenistan. The poached sturgeon is sold, as a rule, in southwestern Turkmenistan and in the capital, Ashkhabad. The state considers this to be acceptable, and almost the sole source of subsistence for the local population (here we can see the principle of "*this is our sea and we'll do whatever we want*").

Regional Cooperation

After the collapse of the Soviet Union, the countries of the Caspian Sea reached a resolution regarding the need for regional cooperation in the field of fishing, and with this goal in mind formed the Commission on Aquatic Bioresources of the Caspian Sea.⁶² So far, the results of its activity can be assessed as modest.

At a session of the Commission in Astana (in November 2005), the volumes of Total Permissible Catches (TPC) were decided with respect to sturgeon, for subsequent submission to CITES. In 2006, the countries reduced their volumes by an average of 23.3 percent when compared to the previous year: Russia by 30.5 percent (from 371 tons in 2005 to 258 tons), Iran by 16 percent (from 595 tons to 500 tons), Kazakhstan by 12 percent (from 220 tons to 195 tons) and Azerbaijan by eight percent (from 100 tons to 92 tons). The issue of the

volume of TPCs for Turkmenistan was not considered due to the absence of a representative from the country at the session. Significant changes were also seen in export quotas for sturgeon meat and caviar for 2006. When compared to 2005, the caviar export quota of the Russian Federation for the following year was reduced from 21 tons to 3.9 tons, for Iran from 60 tons to 51 tons, for Kazakhstan from 15.9 tons to 13.2 tons, and for Azerbaijan from 6.7 tons to 6.5 tons.⁶³ The parties also coordinated export quotas for sturgeon caviar and other food products, in compliance with CITES Resolution 12.7, and the export quota for beluga caviar was reduced by 50 percent, for sevruga caviar by 40 percent, and for osetr caviar by 10 percent.

The Caspian countries are gradually increasing the capacity of hatcheries, which could generate positive results in the long term (the age at which sturgeon reach maturity and start to produce caviar is 10-12 years). Over the last 50 years the number of young released from sturgeon hatcheries of the Caspian countries has increased by dozens of times: from 2.59 million in 1955 to 79.41 million in 2005. Russia is the country most active in restocking the sturgeon population, at 56.7 percent. Iran's contribution runs to 21.6 percent, Azerbaijan-13.1 percent and Kazakhstan-7.5 percent. Russian sturgeon from the Volga amounts to more than 90 percent of the number of fish currently in the sea. Russian territorial waters hold the majority (60 percent) of the total stocks of sevruga.⁶⁴

Regional cooperation will also develop under the Framework Convention for the Protection of the Marine Environment of the Caspian, signed by all the Caspian countries in Tehran in 2003. The goal of the Tehran Convention is the protection of Caspian Sea environment from all sources of pollution, as well as the protection, preservation, and rational use of the resources of the Caspian. This document also stipulates independent or joint application of all related measures to prevent pollution, as well as the protection, preservation, and restoration of the environment of the Caspian Sea. One of the main principles that will govern the parties in implementing the provisions of the Convention is the principle that *the polluter pays*, according to which the party which inflicts an adverse impact on the sea basin will meet the costs of measures to prevent, control, and reduce pollution of the offshore environment of the Caspian.

The Convention was signed by Iran, Russia, Azerbaijan, and Kazakhstan, while Turkmenistan also acceded to the Convention later. The Tehran Convention is the first document to be signed by all the Caspian countries, and creates a foundation for the passage of other multilateral agreements. Among these are an agreement for the preservation of the biological resources of the Caspian, and an agreement on cooperation in the fields of hydrometeorology and sea pollution monitoring. The Convention officially came into force on August 12, 2006, following its ratification by the last of the Caspian countries: Azerbaijan.

In fall 2006, verification measures commenced in three Caspian countries: parallel audits by the Russian Federation Audit Chamber, the Azerbaijan Audit Chamber, and the Accounting Committee for Control over the Use of the Budget of the Republic of Kazakhstan. These audits are assessing the effectiveness of the use of the aquatic bioresources of the Caspian Sea, as well as the resources allocated for the protection, preservation, restoration, and rational use of sturgeon. It is possible that the corresponding agencies in Iran will also become involved in this effort. As yet, it is too early to judge how effective these steps are likely to be.

THE ACTIONS OF INTERNATIONAL ACTORS

The European Union, as one of the main importers of caviar, is actively taking measures to combat the penetration of illegal products onto European markets. For example, an EU resolution (which came into force on July 9, 2006) adopted new labeling rules for member countries, obliging all parties to use CITES labels. The new rules stipulate that importers indicate the place and date where a product was caught, to confirm its legal origin. EU Commissioner for Environment Stavros Dimas expressed the hope that the new rules would facilitate the restora-



tion of the population of sturgeon in the Caspian Sea, and prompt consumers in other countries to take similar measures.⁶⁵

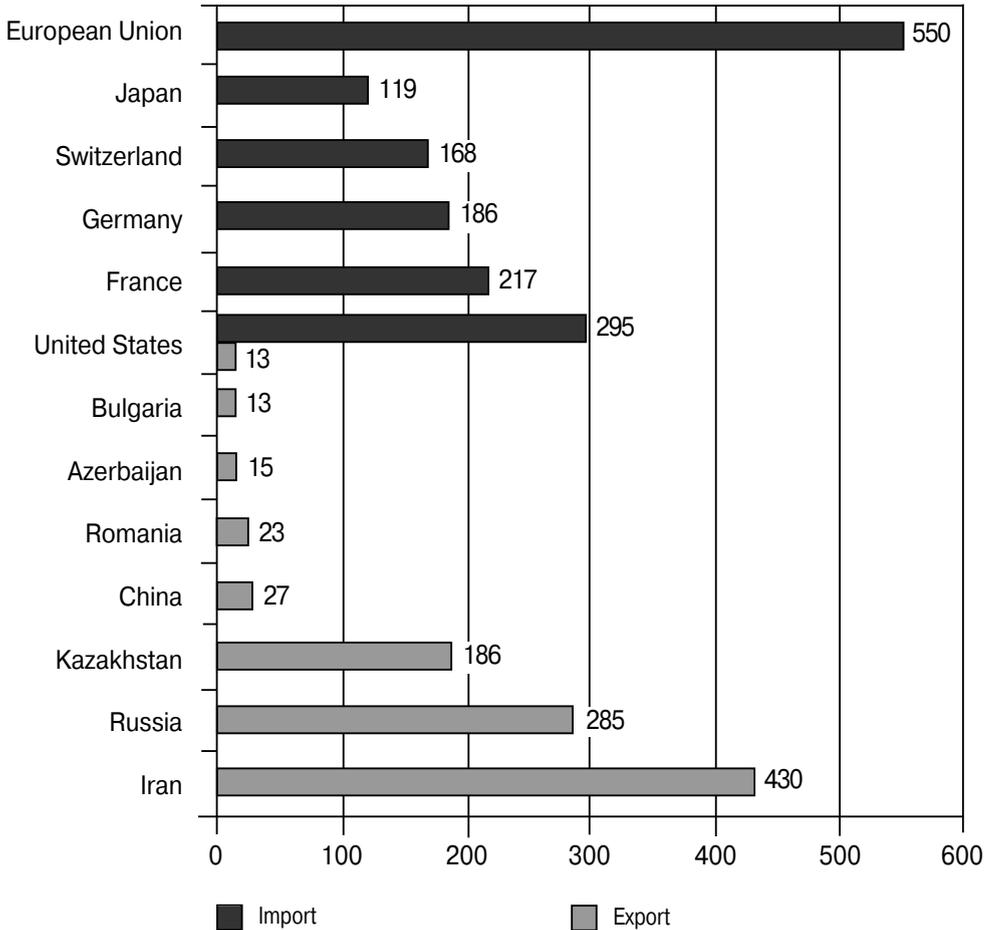
On June 27-29, 2006, the European Union organized a conference to discuss the problem of catastrophic reductions in the sturgeon population, inviting the main players in the caviar game: exporter countries, the main importers, private companies, non-governmental and international organizations, and law enforcement agencies. The recommendations of the conference included improvement of the information exchange process between law enforcement agencies and the creation of a corresponding database; joint international investigations; a universal, standard labeling system for caviar; reinforcement of control over the illegal sale of caviar and possible trafficking routes; and the performance of DNA tests to determine the source of caviar. Interpol, the World Customs Organization (WCO), the European Anti-Fraud Office (OLAF), and Europol have also offered assistance in achieving these goals.⁶⁶

The U.S. Fish and Wildlife Service regulates the import of caviar and other sturgeon products to the United States, including those originating from the countries of the Caspian basin. As the main importer of beluga caviar (70 percent of world imports), the United States actively participates in the preservation of sturgeon, disrupting the illegal trade in caviar and cooperating with the Caspian countries. In 2005, the United States introduced a ban on the export of beluga caviar and other products, as the Caspian countries failed to submit a plan of action for the preservation of this species, which has been listed by U.S. legislators as at risk of extinction. The ban continued in 2006, and only Iran will be able to export caviar from Persian sturgeon to the United States, under its CITES quota for 2006. Apart from Iran, the export of caviar has been permitted from Bulgaria, Romania, Serbia, and Montenegro.

Curiously, the European Union and the United States, while making stringent demands on exporter countries, actually permit the trade of illegal caviar within the markets of Western Europe and North America. A simple Internet search is sufficient to locate significant volumes of such products, including Russian caviar, although in 2005 and 2006 there were officially no exports from Russia. Thus, despite the measures taken, the illegal trade in caviar on world markets continues. According to data submitted by the EU countries and Switzerland, from 2000 to 2005 a total of 12 tons of illegal black caviar was seized (of which 2,224 kg was seized in Germany, 2,067 kg in Switzerland, 1,920 kg in the Netherlands, 1,841 kg in Poland, and 1,587 kg in the United Kingdom). The coordinator of the TRAFFIC⁶⁷ program, Stephanie Theile, believes that the amount of illegal caviar in circulation is far greater than the official statistics indicate. Due to delays in adopting a universal container labeling system that could help determine the source of the *black gold*, it is extremely difficult to combat the illegal market.⁶⁸

The role of *private business* is also noteworthy—there is a constant demand for alternative sources of caviar, and some success has already been achieved in raising sturgeon in farms. In the early 1990s, a new form of international business appeared: commercial sturgeon farming. Today, this industry represents one of the realistic ways of preserving the sturgeon gene pool, reducing pressure on sturgeon poaching, and ensuring some compensation for the lost income of exporter and importer countries from losses of sturgeon in the wild. The industry is rapidly being developed across the world, especially in China, the United States, Switzerland, France, Germany, Italy, Japan, Uruguay, and the Arab Emirates. Manufacturers are optimistic, and expect that the volume of caviar produced by fish farms will almost double, from 64 tons in 2005 to 125 tons in 2010.⁶⁹ However, it has to be remembered that the taste of this caviar is inferior to that of caviar from wild sturgeon. Yet the affordable price, the absence of any restrictions on sales by CITES, and the stability of the supply chain make commercial sturgeon farming a profitable and economically viable prospect for the fish industry.

Table 5: Major Caviar Exporters and Importers (1998-2004, in metric tons)⁷⁰



BIOLOGICAL TERRORISM: WHO IS GUILTY AND WHAT IS TO BE DONE?

Après moi, le deluge—this saying precisely reflects the current attitude to the fate of sturgeons in the Caspian. The approach demonstrated by states to this profitable and prestigious source of income is now simply irresponsible. Effective and rational management would turn this asset into an unending resource for the Caspian countries, while the oil and gas potential of the region will inevitably be exhausted in 30-40 years. This situation is being exploited by criminal organizations, whose annual income from poaching and the sale of sturgeon products may be as high as U.S. \$10 billion.⁷¹

During his first trip to Astrakhan oblast (in April 2002), President Putin visited the fishing areas, where he called the catastrophic sturgeon situation *biological terrorism*: cross-Caspian poaching aimed at the barbaric catch of these most valuable fish and the sale of sturgeon products for export.⁷²

The current situation will have the following, irreversible consequences:

- depletion of sturgeon stocks and the probability of their total disappearance;

- ❑ fall in the average age and the proportion of females in the spawning population of sturgeon. The maximum age of sturgeon at sea has changed as follows: beluga: from 40 to 23, osetr: from 33 to 20, sevruga: from 25-28 to 15 years;⁷³
- ❑ reduction in the average population mass of sturgeon;⁷⁴
- ❑ economic losses of countries in the region due to poaching;
- ❑ reduction in the quality, reputation, and thus the price of caviar on the international market as the black market flourishes.

The solution to the problem lies in preserving natural reproduction and sustainable fishing of sturgeon stocks in the Caspian. However, significant reproductive levels are not immediately achievable unless the Caspian countries take the following steps to preserve the population:⁷⁵

- ❑ introduction of government sturgeon monopolies covering the catch, transport, processing, and sale of sturgeon products;
- ❑ elimination of the economic and social preconditions for poaching. Primarily, legislation governing the fight against poaching needs improvement. Currently, product seized from poachers is legally resold on the country's domestic market, which makes it a profitable enterprise for state and law enforcement agencies. This paradox engenders a tragic situation, in which all the players have a large (and profitable) motivation to continue the *Great Caviar Game*;
- ❑ development of an international legislative framework, taking into consideration the unique aspects of the Caspian, and placing an emphasis on key aspects of sustainable development in the region;⁷⁶
- ❑ harmonization of the efforts of the Caspian countries to preserve sturgeon, including a temporary ban on commercial sturgeon fishing, increase in the productivity of hatcheries and, as a result, an increase in the release of young; formation of a unified, international restocking system to preserve valuable fish species in the Caspian, fully deploying the production capacities of sturgeon hatcheries in the basin with the joint use by producers of resources *taken from the wild* and from sturgeon breeder and maintenance stock, including the transfer of *live* fish eggs between countries to achieve these goals;
- ❑ development of commercial sturgeon farming, which will make it possible to alleviate pressure on the sturgeon population in the wild;
- ❑ more stringent control over the environmental impacts of the oil industry in the region;
- ❑ creation in the countries of the region national collections of sturgeon samples *from the wild* and ensuring the official exchange of standard samples of sturgeon between managerial and scientific authorities of CITES;
- ❑ generation of reproductive sturgeon stocks at both state sturgeon hatcheries and in the private sector, in order to ensure artificial restocking by producers and the preservation of biodiversity in the population;
- ❑ implementation of permanent national and international monitoring of the condition and functioning of the Caspian ecosystem.

A separate task faced by the Caspian countries, of no less importance and even of critical importance, is the urgent determination of the legal status of the Caspian Sea, which currently lacks any form of resolution and is delaying an agreement on the protection of the biore-sources of the Caspian and the division of responsibilities between the Caspian countries. Moreover, the uncertainty of the status of the sea is the main factor generating tension between the countries and may lead to conflict over the right of ownership of oil and gas fields.

Despite some degree of progress, the situation in the Caspian remains critical. The absence of a coordinated policy on the part of the Caspian countries and the international community covering the sustainable development of marine bioresources, of the Caspian as a whole and sturgeon in particular, creates a genuine threat to regional security. This challenge can only be combated through the concerted efforts of the Caspian countries. For this reason, enhancing regional and international cooperation is a vital step. The development of a unified Caspian policy for the preservation, restocking, and rational use of sturgeon fish stocks in the long term could prevent a possible deterioration of relations between the states in the region, ensure their long-term national interests and, most important, preserve this unique marine resource.

A Russian Tsar's decree once forbade shouting and singing near sturgeon spawning grounds to avoid frightening the fish. One would like to believe that the worst times for sturgeon are a thing of the past, and that even in this modern age that ancient decree will be seen as something more than an implausible legend. 

Notes

¹ Konstantin Volkov, "Caviar without Rules," *Itogi*, October 2, 2006, <http://www.7days.ru/Paper2006.nsf/Article/Itogi_2006_01_14_23_0112.html>.

² A publication of the Environment and Security Initiative, created by four international organizations: the UN Environment Programme (UNEP), the Organisation for Security and Cooperation in Europe (OSCE), the UN Development Programme (UNDP), and the North Atlantic Treaty Organization (NATO). "UNEP, UNDP, OSCE and NATO. Environment and Security: Transforming risks into cooperation – Central Asia – Ferghana / Osh / Khujand area," 2005, p. 8, <<http://enrin.grida.no/environment-and-security/ferghana-report-eng.pdf>>.

³ "UNEP, UNDP, OSCE and NATO. Environment and Security: Transforming risks into cooperation – Central Asia – Ferghana / Osh / Khujand area," op. cit., p. 9.

⁴ This work focuses on the five countries bordering the Caspian: Russia, Azerbaijan, Kazakhstan, Turkmenistan, and Iran.

⁵ Umirserik Kasenov, "Caspian Oil and International Security," *Central Asia and the Caucasus*, No. 11 (1997), <http://www.ca-c.org/journal/11-1997/st_07_kasenov.shtml>.

⁶ Under a Russian presidential decree, the border services are responsible for protection of sturgeon in the Caspian and regularly detain poachers not only from local villages, but also from neighboring Azerbaijan and Kazakhstan.

⁷ Russia and Iran share a strong position favoring the protection of the unique natural environment of the Caspian and the prevention of pollution there. In this connection, these countries do not support the projects for the construction of underwater oil and gas pipelines along the Caspian Sea bed between Kazakhstan and Azerbaijan and between Turkmenistan and Azerbaijan.

⁸ Vladimir Ivanov, *The Caspian Sea's Biological Resources* (Astrakhan: KaspNIIRKh, 2000), p. 12.

⁹ A. Mazhnik, A. Vlasenko, R. Khodorevskaya, G. Zykova, A. Popova, A. Romanov, and S. Bushueva, "Developing Approaches to Evaluate Sturgeon Stocks and Total Permissible Catches in the Caspian Sea," in *Fishery Research in the Caspian: Results of 2004 Research* (Astrakhan: KaspNIIRKh, 2005), p. 256.

¹⁰ Ibid.

¹¹ Vulf Sternin and Ian Dore, 1993; Ivanov, 2000; Protocols of Sessions of the Commission on Aquatic Bioresources of the Caspian Sea, 1998-2005.

¹² Vladimir Ivanov, op. cit., p. 14.

¹³ It is incorrect to claim that sturgeon caught on the Volga are *more contaminated* than those caught in Iranian waters. All sturgeon grow and feed in the Caspian Sea, in the same waters. The degree of contamination is identical, because fish swimming toward spawning grounds do not feed in rivers.



¹⁴ “Sturgeon,” WWF Factsheet, 12th Meeting of the Conference of the Parties of CITES, Santiago, November 3-15, 2002, <http://assets.panda.org/downloads/Sturgeon_factsheet.pdf>.

¹⁵ Felicity Barringer and Florence Fabricant, “In Conservation Effort, U.S. Bans Caspian Beluga Caviar,” *New York Times*, September 30, 2005, <<http://www.nytimes.com/2005/09/30/politics/30caviar.html?ex=1285732800&en=87924b6325822368&ei=5090&partner=rssuserland&emc=rss>>.

¹⁶ Mazhnik, Vlasenko, Khodorevskaya, et al., op. cit., p. 258.

¹⁷ Source: R. Khodorevskaya and A. Romanov, “Changes in the Distribution and Quantity of Sturgeon in the Caspian Sea,” in *Aquaculture of Sturgeon: Successes and Prospects for Development* (Astrakhan and Moscow: VNIRO, 2006), papers from an international scientific conference, March 13-15, 2006, pp. 12-15.

¹⁸ The average fall in sea level between 1929 and 1941 was approximately 16 cm/year, although in some years the sea level dropped by as much as 30-33 cm. The average increase in sea level between 1978 and 1995 was approximately 13 cm/year, although in some years the sea level rose by as much as 33-35 cm. V. Mikhailov, G. Rychagov, and E. Povalishnikova. “Is the Recent Increase in the Level of the Caspian Sea and Its Consequences a Natural Catastrophe?” *Vestnik RFFI*, No. 45 (December 1998), <http://www.rfbr.ru/default.asp?section_id=83>.

¹⁹ Ibid.

²⁰ D. Baydeldinova, “Threats to Environmental Security in the Caspian,” a publication of the Kazakhstan Institute for Strategic Research attached to the President of the Republic of Kazakhstan, January 28, 2005, <<http://www.kisi.kz/img/docs/1220.pdf>>.

²¹ The scale of possible underfishing in the above period amounts to 132,000 tons, equivalent to the predicted catch of 150,000 tons minus the actual catch of 18,000 tons. Moreover, of 132,000 tons of sturgeon caught, it will be possible to process up to 13,000 tons of sturgeon caviar with an average value of U.S. \$750 per kilogram according to 1996-2005 market prices, totaling U.S. \$9.7 billion, and up to 103,000 tons of food product (calculated as frozen product) with an average sales value of U.S. \$6 per kilogram, totaling U.S. \$618 million. From an interview by the author with Valery Paltsev, executive director of the Russian Sturgeon Harvest and Production Association.

²² From an interview by the author with Valery Paltsev, executive director of the Russian Sturgeon Harvest and Production Association.

²³ These agreements entered into force on January 1, 2004.

²⁴ “Exporters to strengthen controls and promote sustainable fishing before CITES can publish 2006 export quotas,” CITES press release, January 3, 2006, <<http://www.cites.org/eng/news/press/2006/060103.shtml>>.

²⁵ “Export Quotas for Sturgeon,” CITES, 2006, <http://www.cites.org/eng/resources/quotas/sturgeon_intro.shtml>.

²⁶ Valery Paltsev, interview by the author. This point of view was officially voiced by Russia, Kazakhstan, and Azerbaijan during a summit of these countries on April 24, 2006 in Moscow, and has been voiced to the CITES Secretariat. The text of the statement was submitted by Kazakhstan Fishing Industry Committee Chairman Kanat Suleimenov, acting as a representative of the party currently chairing the Commission on the Aquatic Bioresources of the Caspian Sea.

²⁷ “Export Quotas for Sturgeons,” CITES, 2 January 2007, <<http://www.cites.org/common/quotas/2007/Sturgeon2007.pdf>>.

²⁸ “Following 2006 ban, CITES authorizes 2007 quotas for all Caspian Sea caviar except beluga,” CITES Press Release, January 2, 2007, <<http://www.cites.org/eng/news/E-Press%20release%202007%20quotas.pdf>>.

²⁹ The main sections of this program are as follows: scientific observations and research to assess the condition of stocks and to determine the total permissible catch (TPC), to improve restocking technologies and to preserve sturgeon; to produce and create breeder stocks, and maintain these for the purposes of artificial restocking; state regulation of individual stages in the circulation of sturgeon: production, transportation, processing of food products and sales on domestic and foreign markets; maintain-

ing habitats and natural spawning conditions in bodies of water (fishing ground improvement efforts); commercial sturgeon farming; protection of fish stocks, combating poaching and the illegal trafficking of sturgeon and sturgeon products. This work is performed not only by state enterprises and establishments, but also by private enterprises, which independently finance such operations.

³⁰ There are a total of 11 sturgeon breeding farms, or hatcheries, in Russia.

³¹ Ekaterina Glikman, "Duma Drafts Bill on the Caviar Business," *Novaya gazeta*, March 30, 2006, <<http://2006.novayagazeta.ru/nomer/2006/23n/n23n-s17.shtml>>.

³² Anna Kozyreva, "Very Fresh Sturgeon," *RF Segodnya*, No. 16, 2003, <http://russia-today.ru/2003/no_16/16_SF_2.htm>.

³³ "An 'Underground' Delicacy," Interior Ministry Web Site, June 17, 2003, <<http://www.mvd.ru/news/769/>>. During the large-scale Operation South-East Blockhouse (Blokpost Yug-Vostok) on the Caspian in 2003, GUSB MVD police officers intercepted 1,200 incidences of poaching in a period of less than one month, seizing 180 poaching boats, 10,000 meters of nets, and approximately 400 hook and lines, 1,236 kg of sturgeon caviar, 170 kg of sturgeon fish and almost 135 tons of other seafood (the total value of the seized goods, by the most modest estimates, was 81,724,000 rubles). More than 73 people were caught illegally fishing, and as a result 5,000 criminal cases were opened.

³⁴ Every single batch of sturgeon shipped for export, and when imported into the destination country, must possess a document of permission, adhering to a specific format and level of security, issued by the national management authority of CITES. Russia produced no exports of sturgeon, including from the Caspian basin, in 2003 and 2005, when export quotas were published by the CITES Secretariat as follows: 29.5 tons (<http://www.cites.org/common/quotas/2003/2003sturgeon.pdf>) and 20.7 tons (http://www.cites.org/common/quotas/2005/sturgeon_quotas2005.pdf). Financial losses for these reasons are estimated to total U.S. \$65 million (or 55 million). The average price of sturgeon caviar in the western European market during these years is taken to be around \$1,100 per kilogram.

³⁵ Elena Komarova, "The Salty Fruits of the Ban," *Moskovskiy novosti*, December 30, 2005, <<http://www.mn.ru/issue.php?2005-50-36>>.

³⁶ The Committee of the Government of the Russian Federation on Legislative Activity on May 22, 2006 approved the concept and objectives for drafting the federal law *On the Preservation, Restocking and Rational Use of Sturgeon, and the Regulation of the Circulation of Sturgeon Products*. The draft of the federal law *On Amendments to Article 56 of the Federal Law On Wildlife* contains provisions that stipulate the destruction of illegally obtained specimens of certain wildlife species (including sturgeon) and their derivative products, following seizure. This bill was reviewed and approved at a session of the Russian government on October 4, 2006. After the above bill is presented for signature by the Russian head of state, a draft presidential decree entitled *On measures of state regulation over the circulation of products derived from sturgeon fish, including caviar* will be presented. The implementation of this decree will allow for the destruction of confiscated product derived from sturgeon in order to avoid its legalization and to ensure the sale of sturgeon products only in special stores. A number of other bills have now also been drafted: the federal law *On Amendments to Article 17 of the Federal Law On Licensing Certain Activities* and a federal law amending the section of the Criminal Code of the Russian Federation on reinforcing sanctions on the illegal production of aquatic fauna and flora, in the form of imprisonment for a period of up to five years with compulsory seizure of the instruments of crimes in favor of the state; also, a number of draft resolutions of the Russian government, necessary for the implementation of the above bills and decree.

³⁷ "The Russian Ministry for Nature is Concerned about the Possibility of Pollution of the Caspian due to Oil Transportation by Kazakhstan and Azerbaijan," *REGIONS.RU/Novosti Federatsii*, July 7, 2006, <<http://www.regions.ru/news/1989796>>.

³⁸ Azerbaijani Minister for Ecology and Natural Resources Husein Bagirov, "Determination of the Legal Status of the Caspian Will Help to Resolve the Ecological Problems of this Body of Water," *Interfax*, February 7, 2005, <http://www.interfax.ru/r/B/exclusive/246.html?menu=65&id_issue=10747108>.

³⁹ Ibid.

⁴⁰ Commission on the Aquatic Bioresources of the Caspian Sea, Protocol of the 24th session, Appendix No. 4, Astana, 2005.



⁴¹ For example, Azerbaijan's quota for sturgeon catches in 2005 was 100 tons. In 2006 the catch fell to just 92 tons. The export quota for caviar in 2005 was 6.7 tons, and it is expected that the quota for this year will be 6.5 tons.

⁴² Paul Rimple, "Azerbaijan Assumes Control of Sturgeon," *EURASIA*, February 27, 2006, <<http://www.eurasianet.org/russian/departments/insight/articles/eav022706aru.shtml>>.

⁴³ Ibid.

⁴⁴ Husein Bagirov, op. cit.

⁴⁵ Guive Mirfendereski, "Sag mahi: The theology of caviar," *Iranian*, September 13, 2000, <<http://www.iranian.com/GuiveMirfendereski/2000/September/Caviar/index.html>>.

⁴⁶ "Boosting Caviar Production," *Iran Daily*, July 9, 2006, p.6, <<http://iran-daily.com/1385/2605/pdf/i6.pdf>>.

⁴⁷ This integrated index takes into consideration natural and artificial restocking, the volume of the fresh-water stock, environmental factors, the size of sturgeon spawning grounds within the territories of specific states, etc.

⁴⁸ "Sturgeon Stocks Slump," *Iran Daily*, March 5, 2006, <<http://www.iran-daily.com/1383/2228/pdf/i6.pdf>>.

⁴⁹ Remarks by Secretary of State Madeleine K. Albright on American-Iranian Relations (as released by the Office of the Spokesman U.S. Department of State), March 17, 2000, Washington, D.C., <<http://www.fas.org/news/iran/2000/000317.htm>>.

⁵⁰ "Iran's Caviar exported to the USA grows 48 percent," Iran Fisheries Organisation, January 25, 2005, <<http://www.iranfisheries.net>>.

⁵¹ Ibid.

⁵² Source: CITES trade database, <<http://www.unep-wcmc.org/citestrade/trade.cfm>>.

⁵³ "Sturgeon Stocks Slump," op. cit.

⁵⁴ Source: CITES trade database, <<http://www.unep-wcmc.org/citestrade/trade.cfm>>.

⁵⁵ Naida Pirmetova, "The Influence of Poaching on Stocks of Valuable Fish in the Caspian," Publication of the Center for Regional Development in Azerbaijan, <<http://www.azregionaldevelopment.org/cgi-bin/cms/vis/vis.pl?s=001&p=0019&n=000093&g=>>>.

⁵⁶ "Mangystau Oblast to Set up Sturgeon Reproduction Center," *Kazinform*, August 25, 2006, <<http://www.inform.kz/showarticle.php?lang=eng&id=144100>>.

⁵⁷ Agreement between the governments of the Russian Federation and Kazakhstan on the activities of representatives of the border services, <<http://www.rian.ru/doc/20040109/1718709.html>>.

⁵⁸ Konstantin Borodinov, "Minister A. Samakov: 'The Environmental Problems in the Oil Fields Must Be Solved Together,'" *Kazinform*, October 5, 2005, <<http://www.earthwire.org/cache.cfm?aid=98482>>.

⁵⁹ D. Baydeldinova, op. cit.

⁶⁰ "U.S. Companies Win Sturgeon Tender Announced by the State Fisheries Committee of Turkmenistan," *Turkmenistan*, July 11, 2005, <http://www.turkmenistan.ru/?page_id=3&lang_id=ru&elem_id=6865&type=event&sort=date_desc>.

⁶¹ Oraz Kurbangel'dyev, "Towards No Fish... Turkmen authorities are not controlling sturgeon catches in the Caspian," *TsentrAziya*, October 24, 2004, <<http://www.centrasia.ru/newsA.php4?st=1098626580>>.

⁶² The committee was created in 1992 on the initiative of Russia for the purposes of the joint management of fishing resources, and to date has been performing functions of assessing stocks and total permissible catches of transboundary species of aquatic bioresources (sturgeon, anchovy, seals, etc.), the development of rules for the regulation of fishing and measures to protect fishing resources, the development

of recommendations for the use of standard fishing equipment, and scientific research in the field of the preservation and restocking of fish populations. Initially, only the countries of the CIS participated in the work of the committee. Iran was involved only in the capacity of an observer. In 2002, Iran became the first fully-fledged member of the committee. In line with committee recommendations, since 2001 all the Caspian countries have participated in a joint, annual program of seasonal marine expeditions to assess the number and stocks of sturgeon and to determine the impact of natural and anthropogenic factors. Each year, the committee determines quotas for fishing of sturgeon and the export of black caviar, which is subsequently submitted to the CITES Secretariat, where it is published on the organization's official website after a review and approval process. One of the latest committee innovations is to determine quotas for a new, standardized method, involving the execution of general monitoring of fish resources in the Caspian Sea. Until now, each of the countries has presented their calculations of the size of food sources, the volume of fish in their sectors, the possibilities for restocking, the evidence used determine total fish stocks in the Caspian, total quotas for sturgeon fishing, and the distribution of these quotas between the countries. The Commission on the Aquatic Bioresources of the Caspian Sea has been functioning for 14 years, and has achieved certain successes. For example, in the last two years the committee has developed and approved the Interstate Regional Program of Caspian countries for the joint management, preservation, and stable use of the bioresources of the Caspian Sea, three international seminars have been organized and conducted, cooperation has been organized between the Committee and the CITES Secretariat, and other international organizations involved in the problem of sturgeon.

⁶³ The total quota for fishing of sturgeon by the Caspian states in 2006 was reduced by 23.2 percent. Source: *Rakhat-TV*, December 1, 2005, <<http://www.rakhattv.kz/section.asp?SectionID=29>>.

⁶⁴ Mazhnik, Vlasenko, Khodorevskaya, et al., op. cit., p. 256.

⁶⁵ "EU Introduces New Rules for Marking Sturgeon Caviar," *RosBiznesKonsalting*, May 16, 2006, <<http://www.fishery.ru/news/index.php?id=8008>>.

⁶⁶ "New Rules to Combat Illegal Caviar Trade," EU press release, Brussels, May 15, 2006, <<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/06/611&format=HTML&aged=0&language=EN&guiLanguage=en>>.

⁶⁷ The TRAFFIC initiative was developed by the World Wildlife Fund and the World Conservation Union (IUCN) to monitor trade in vanishing species of flora and fauna, and for research aimed at the sustainable development of these species. TRAFFIC, along with the U.S. "Caviar Emptor" program created by the Pew Institute for Ocean Science, the Sea Web organization, and the U.S. National Resources Defense Council for the preservation of sturgeon are currently the leading non governmental organizations conducting information campaigns aimed at saving the sturgeon.

⁶⁸ "Cracking Down on Illegal Caviar Trade," WWF, July 3, 2006,

<http://www.panda.org/about_wwf/what_we_do/marine/news/index.cfm?uNewsID=74780>.

⁶⁹ Jane Black, "Caviar from Farms instead of the Seas," *New York Times*, September 26, 2006, <<http://www.iht.com/articles/2006/09/26/news/caviar.php>>.

⁷⁰ "Black Gold: The caviar trade in Western Europe," Factsheet, *TRAFFIC*, <http://www.traffic.org/news/Caviar_factsheet.pdf#search=percent22trafficpercent20caviarpercent20factsheetpercent22>.

⁷¹ D. Baydeldinova, op. cit.

⁷² Vladimir Putin, speech at a meeting on the problems of the Caspian region, Astrakhan, April 25, 2002, <<http://www.kremlin.ru/text/appears/2002/04/28886.shtml>>.

⁷³ Mazhnik, Vlasenko, Khodorevskaya, et al., op. cit., p. 259.

⁷⁴ The sturgeon population in the North Caspian in 2002 was dominated by adults (80.4 percent), and by 2004 their proportion fell to 61.5 percent while in the Middle and South Caspian young and sub-commercial size fish made up 88.7 and 92.9 percent of the population, respectively. Compared to 2002 figures for the shallow zone of the North Caspian, the proportion of immature fish in the sevruga population grew from 58.2 to 64.7 percent, and reached as high as 75 percent in the deep-water zone. In the Middle Caspian in general, the number of young and sub-commercial size fish increased from 55.5 to 90.0 percent, and fell in the South Caspian from 73.7 to 61.4 percent. Young fish are predominant in the beluga



population. The average length and mass are 153.9 cm and 37.3 kg. The proportion of mature fish does not exceed nine percent, while the proportion of immature is 35 percent.

⁷⁵ The recommendations were compiled based on the results of analysis, and an interview with the expert Valery Paltsev.

⁷⁶ In part, this involves the development of a regulatory basis for the protection of the marine environment, the preservation of biological diversity, the creation of a rigid mechanism of control over the fulfillment of contracts and the application of the corresponding contracts, and the development of a legal and regulatory framework for the Caspian countries to prevent oil spills and rapidly react to emergency situations.