CITES World

Official Newsletter of the Parties

Convention on International Trade
in Endangered Species of Wild Fauna and Flora (CITES)
Issue Number 8 - December 2001

A new focus for *CITES World*

"Five spoons dip into the pot, but how many spoonfuls are there?" mused a caviar exporter, considering the future of the Caspian sturgeon fishery. He was referring to the five Caspian littoral States of Azerbaijan, the Islamic Republic of Iran, Kazakhstan, the Russian Federation and Turkmenistan, which share the sturgeon resource of the Caspian Sea and with it the responsibility for its sustainability and sound management.

Managing a shared resource is always a challenge, especially one as valuable as sturgeon. This is further complicated by the steady decline of sturgeon stocks in the last decades. The drop in sturgeon populations prompted Parties to agree at the 10th meeting of the Conference of the Parties, in 1997, to list all remaining species of Acipenseriformes in Appendix II. This concern by the Parties also extended to including sturgeon species in the review of species traded in significant quantities decided under Resolution Conf. 8.9 (Rev.) on *Trade in specimens of Appendix-II species taken from the wild*. The results of the Review of Significant Trade prompted the Standing Committee, at its 45th meeting, in June 2001, to recommend with the full agreement of the Caspian States a plan of action that will ensure control over the trade in sturgeon products, improve enforcement efforts and facilitate cooperative management.

Much has happened since Parties adopted Resolution Conf. 10.12 (Rev.) on *Conservation of sturgeons*. The CITES community must deal with an international fishery targeting species with complex and at times poorly understood life cycles. What are the main conservation issues to address? What actions have been carried out to help the species, and what remains to be done? Parties must be well informed, and with CoP12 looming on the horizon, this eighth edition of *CITES World* takes a closer look at sturgeons in the Caspian Sea and tries to answer some of these questions. With contributions from Azerbaijan, Iran, Kazakhstan and the Russian Federation, *CITES World* presents updates on what Parties are doing to protect and ensure the sustainability of this shared sturgeon resource and the global trade in sturgeon products. Background information on sturgeon and the Caspian Sea is provided, and some of the more important conservation issues concerning the species are discussed. We also explore how CITES has contributed to conserve sturgeons and manage utilization of the resource. While we cannot answer the question on how many "spoonfuls" remain, we can help demystify some of the issues surrounding the use of some of the world's most ancient living fishes.

With this edition the CITES newsletter adopts an improved look and a renewed focus. In this and future editions, your newsletter will examine topical CITES issues, review national and international actions and initiatives, provide a range of perspectives to consider, and spotlight CITES successes. Your comments are always appreciated, so please let the *CITES World* team know your views on this edition, and share with us your ideas for future ones.

Stephen V. Nash (CITES Secretariat)

Sturgeons, significant trade and the "Paris agreement"

The significant-trade review process is the Convention's mechanism for remedial action when there is reason to believe that Appendix-II species are being traded at significant levels without adequate implementation of CITES provisions. This process, if implemented correctly, acts as a safety net for the Convention. It ensures that species do not decline as a result of international trade while they are listed in Appendix II by proposing appropriate corrective measures to be taken. The mandate for this process is provided by Resolution Conf. 8.9 (Rev.), and is implemented by the Animals and Plants Committees working with the Secretariat and the Standing Committee.

In December 2000, the Animals Committee discussed detailed reviews of 10 sturgeon species, and following the procedures of the Review of Significant Trade, made primary and secondary recommendations to the range States concerned. At the 45th meeting of the Standing Committee (Paris, June 2001), an agreement was reached with Azerbaijan, Kazakhstan and the Russian Federation, as countries subject to primary and secondary recommendations, together with the Islamic Republic of Iran, on a 3-stage, 12-month plan of action that will assist the States of the Caspian Sea to build a science-based management system for the long-term conservation and sustainable use of sturgeon. Turkmenistan was not represented at the meeting, but later confirmed that it will adhere to the agreement.

Stage 1

The agreement gave Azerbaijan, Kazakhstan and the Russian Federation until 20 July 2001 to inform the Secretariat of all stocks of specimens intended for export that were held from sturgeons harvested in the spring of 2001 only. These States agreed to restrict further exports in 2001 to the amounts of the declared stocks, provided these amounts did not exceed existing quotas. These States also agreed to suspend all commercial harvesting for the remainder of 2001. Azerbaijan Kazakhstan and the Russian federation submitted their declarations of stocks of sturgeon products destined for export before the deadline. The Secretariat then undertook verification missions during July-September to Azerbaijan, Kazakhstan and the Russian Federation, and was satisfied that during its visits that it was shown all stocks

of sturgeon products destined for export, as required by the Standing Committee decision. The mission did not observe any significant discrepancies in the declared versus observed figures. Secretariat staff visited Turkmenistan in October to discuss implementation of the agreement, and representatives from Iran were able to visit the Secretariat in October.

Stage 2

The agreement gives the Caspian States until the end of 2001 to conduct a comprehensive survey of sturgeon stocks, ask Interpol to analyse the illegal sturgeon trade, call on the CITES Secretariat (in collaboration with Interpol and the World Customs Organization) to conduct a study of enforcement needs for combating illegal harvesting and trade, and allow on-site inspections of their sturgeon management activities. Agreement must also be reached by this date on the coordinated management of their Caspian sturgeon resources, including the joint setting of catch and export quotas for 2002. Any failure on the part of these States to implement the Paris agreement will result in zero quotas for 2002.

Stage 3

In addition to the requirements for 2001, Azerbaijan, Kazakhstan, the Russian Federation, (and Turkmenistan where relevant) have until 20 June 2002 to establish a long-term survey programme for sturgeon incorporating up-to-date technology and techniques, to take advice from the Food and Agriculture Organization of the United Nations on managing regional fisheries, to adopt a collaborative management system for Caspian Sea sturgeon fisheries, to increase significantly their efforts to combat illegal harvesting and trade and to regulate domestic trade, to submit funding proposals to the Global Environment Facility and other donors for rehabilitating sturgeon stocks, and to implement a caviar labelling system.

The Secretariat

Status of Caspian sturgeon stocks and their conservation

The commercially important sturgeons are migratory fish species that spend most of their life in the sea and enter rivers to spawn. The major feeding sites of sturgeons are located in the northern Caspian and, when the northern part of the sea is covered with ice during autumn and winter seasons, sturgeons migrate to the middle and southern Caspian. During the spring and summer seasons the major part of the population returns to the north. Fish that have reached sexual maturity migrate to the larger rivers, primarily the Volga (70 per cent) and Ural Rivers (about 25 per cent), and to the Terek and Kura Rivers (5 per cent). The Persian sturgeon *Acipenser persicus* inhabits the southern part of the Caspian Sea and rarely occurs in other parts of the sea and rivers. The northern Caspian supports the major commercial stocks, namely 70 per cent of the Russian sturgeon *A. gueldenstaedtii*, 57 per cent of the stellate sturgeon *A. stellatus* and 65 per cent of the beluga *Huso huso*. Sturgeons are harvested in rivers using seine nets. Sea harvesting is banned in Azerbaijan, Kazakhstan and Russian Federation.

In the first half of the 20th century, the size of the sturgeon stock depended on natural reproduction in rivers and the volume of harvest. More than 35,000 tons of sturgeons were harvested from the Caspian Sea at the beginning of the century and from 1920 to 1990 the annual tonnage of fish harvested varied from 10,000 to 28,000 metric tons, producing about 90 per cent of the world catch of sturgeons.

In the second half of the 20th century, natural reproduction decreased drastically because of hydroelectric development in the rivers of the basin. For example, spawning areas in the Volga River were reduced from 3,390 ha to 430 ha, and the Terek and Kura Rivers could hardly be used for spawning. The decrease in natural reproduction also resulted from a reduction of the river flow, a drop in seawater level and increasing pollution from industrial and agricultural origins.

In order to compensate for the indirect damage caused by hydroelectric development, 13 sturgeon hatcheries were built in the USSR and a hatchery was constructed in Iran between 1954 and 1965. Between 1980 and 1990, more than 100 million sturgeon juveniles weighing 2-3 g in weight were produced annually. Sturgeon hatcheries of the Soviet era produced 2.2 billion young fish between 1955 and 2000. The commercial return from these releases varied depending on year, but did not exceed 1 per cent.

In 1981 a fishery regime was introduced so that the spring

race of the population could predominantly reach spawning sites. For this purpose, sturgeon fishing in the Volga River begins on May 15 and lasts till June 15. In autumn fishing is carried out from September 1 until quotas are utilized or the river is ice-bound. These measures did improve the state of sturgeon stocks and catches increased again to 25,000-30,000 metric tons between 1975 and 1985. However between 1990 and 1992, the catches of sturgeons fell to 15,000-16,000 metric tons and in 2000 they constituted no more than 2,000 metric tons.

Monitoring of the state of sturgeon stocks in the sea has been conducted by the Caspian Fisheries Research Institute (KaspNIRKh) for more than 50 years, most recently with the participation of Azerbaijan and Kazakhstan. According to the data collected, the total number of sturgeons in the sea in 1999 reached 52.3 million individuals, subdivided as follows: 9.3 million beluga, 29.2 million Russian sturgeons and 13.8 million stellate sturgeons. Since 1987 the total number has declined by a factor of two and a half, with the commercial stock reduced to one third, and the spawning population has decreased by a factor of 15. The number of sturgeons entering spawning grounds in the Volga River has decreased by a factor of more than 13 times. The main cause of this drastic decline in adult sturgeon stocks is the illegal sea harvest. This illegal harvest is believed to exceed legal catches several times over, and is conducted most intensively along the western coast of the Caspian Sea.

In order to control the fishery, the Commission on Caspian Aquatic Bioresources was established in 1992 by Azerbaijan, Kazakhstan, the Russian Federation and Turkmenistan. The Commission approves the method for allocating quotas on Caspian straddling stocks, including sturgeons, which is based on several factors, including the volume of freshwater flow, the number of young fish migrating downstream, the quantities of young fish produced and released by hatcheries and the biomass of food resources available off the coast.

By itself, the Commission on Caspian Aquatic Bioresources cannot solve the problem of the declining sturgeon stocks in the Caspian Sea. It is necessary to coordinate efforts of all the States surrounding the Caspian Sea (as is recommended in Decision 11.58 and by the Standing Committee), and to establish a special committee on resource management and international inspection. These measures are stipulated in the Draft Agreement on Caspian Bioresources Conservation and Management, which has not yet been signed by the Parties because of disagreements over borders. However, an agreement needs to be signed urgently irrespective of these political issues.

Captive breeding

Captive breeding assumes an even greater importance for sturgeon stock development in view of large-scale illegal fishing. From the data gathered by KaspNIRKh, more than 96 per cent of the beluga population, 56.6 per cent of the Russian sturgeon population and 36 per cent of the stellate stur-geon population consist of captive bred fish. In line with food availability, sturgeon fingerling production could be increased to 150 million fish per year.

In order to safeguard sturgeon populations, it is necessary to pass and enforce legislation in all the Caspian littoral States to fight poaching and, for the Russian Federation, to introduce a State monopoly on fishing, processing and marketing of sturgeon products.

Finally, along with measures to protect sturgeon stocks, it is necessary to increase the efficiency of natural reproduction of sturgeons. The first priority is to establish favourable hydrological conditions during the spawning season and thereby increase the number of spawners reaching the spawning grounds, to improve natural spawning sites and to create artificial ones.

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Caspian sturgeons and the Russian Federation

Strategy of the Russian Federation on sturgeon stocks

The decrease in numbers of practically all sturgeon populations in the Russian Federation has become catastrophic, and this threatens the fisheries and their commercial importance. The situation is critical in the Caspian and Azov Seas, which home to more than 90 per cent of the world stock of these fishes. Some sturgeons have already been listed in the Red Data Book of Russia, or require urgent listing. The immediate reversal of the decrease in sturgeon numbers is necessary for conservation and economic reasons.

To assist with the conservation and management of sturgeon stocks, the "General National Strategy on Conservation of Biodiversity and Non-depleting Use of Sturgeon in Russia" has been developed. The realization of this Strategy is directed towards accomplishing the following main tasks:

- Constant monitoring of sturgeon population status and numbers and proportion of spawning adults and females, and development of biologically reasonable catch quotas (which may include zero catch quotas, if required);
- Effective prevention of illegal catches of sturgeon in feeding, hibernation and spawning areas;
- Complete cessation of off-take in the sea or feeding areas;
- Maintenance and improvement of natural reproduction, strict protection of breeding fishes in breeding areas and the creation of strictly protected areas and reserves to reach these goals;
- Maintenance of appropriate levels of artificial sturgeon breeding in compliance with scientific recommendations, resulting in an increase in reproduction and survival rates;
- Creation of live collections of "female sturgeon herds";
- Development of methods for molecular identification of sturgeon specimens to assist with controlling international trade;
- Establishment of a State monopoly on harvesting, processing and selling of sturgeon;
- Conclusion of bilateral and multilateral agreements with Azerbaijan, the Islamic Republic of Iran, Kazakhstan and Turkmenistan on the protection and sustainable use of the Caspian sturgeons, as well as an agreement with China on the conservation and joint use of the Amur sturgeon stocks;
- Development of aquaculture of sturgeon species in order to alleviate harvest pressure on natural populations;
- Development and approval of unified standards for identifying sturgeon and the products thereof for exporters and importers, and setting of a protocol for selecting samples for verification;
- Conduct of research on different sturgeon species to identify subspecies that may be in urgent need of conservation;
- Development of sturgeon population models to forecast population changes and determination of permissible levels of use and human impacts;
- Study of sturgeon migrations, taking into account conditions of regulated river discharge;
- Analisis of the current state of natural sturgeon reproduction;
- Development of modern objective methods to evaluate the efficiency of artificial reproduction;
- Development of strategies for preserving sturgeon genes, including the expansion of existing live collections and start of new ones, as well as the development of techniques for cryoconservation of sturgeon genes and the creation of sperm cryobanks;
- Analisis of limiting factors for sturgeon populations; and
- Development of national strategies for conserving and maintaining sturgeons in the various range States.

Action Plan for the Caspian Sea

After taking into account the present critical condition of sturgeon stocks in the Caspian Sea, the following measures are considered to be of decisive importance for their conservation, exploitation and reproduction in the Volga-Caspian Sea fishery region:

1. *Adoption of an intergovernmental agreement between the Caspian States concerning the rational management of biological resources of the Caspian Sea*. This should involve the development of principles for general fishery and protection rules, conservation of natural reproduction and breeding in captivity, as well as the adoption of coordinated national sturgeon catch quotas. One of the basic items of this agreement must include the banning of sea-based fisheries until selective fishing gear that can exclude incidental sturgeon catches is developed. This would enable the replenishment and conservation of breeding stocks of the beluga (*Huso huso*), Russian sturgeon (*Acipenser gueldenstaedtii*), stellate sturgeon (*A. stellatus*) and ship sturgeon (*A. nudiventris*).
2. *Combating of all illegal fishing of upstream-migrating sturgeon off the Dagestan and Kalmykia coasts*. This would provide access of spawning sturgeons to the Volga Delta and upper reaches of the Volga River, to Volgograd. It would also allow for the optimal use of remaining natural spawning grounds for natural spawning, and completely meet demands of sturgeon hatcheries for broodstock. To accomplish these tasks a well-defined work and effective cooperation are to be put into place by the fishery protection and coast guard units to protect sturgeon stocks within Russian territorial waters in the Caspian Sea, and with the participation of armed forces of the Ministry of Internal Affairs in the Volga River.
3. *Adoption of the new fishery rules developed by the Caspian Fishery Research Institute (KaspNIRKh, in Astrakhan) and consideration of the total or partial closure of the sturgeon fishery in case of a further decline in their stocks*. At present, it is necessary to ban completely the sturgeon fishery in the upper areas of the Volga River. When sturgeon breeders are migrating upstream to their natural spawning

grounds, special emphasis is required to ensure the maintenance or normal sex ratios in such breeding stock.

4. *Implementation of the federal law "On the conservation of sturgeons and rational use of their stocks" as soon as it is adopted*. The fish protection and administrative organizations of the Astrakhan and Volgograd Regions, Dagestan and Kalmykia Republics, and legal and fishery institutions will provide a frame for its implementation.
5. *Strengthening of the protection of sturgeons in the spawning zone sanctuary within the Kamenniy Yar area*. This is in order to increase the success rate of natural reproduction of sturgeons, and to improve the natural spawning grounds and fish bypass channels in the Volga delta for an obstacle-free downstream migration of sturgeon fingerlings.
6. *Intensification of the studies on genetic and physiological monitoring of sturgeon populations*. These data can be used to improve fish farming.
7. *Maximization of the efficiency of artificial reproduction of sturgeons*. This will be accomplished by implementing the following measures: carring out major improvements to existing sturgeon hatcheries in the Volga River, including the construction of tanks for prolonged maintenance of breeders, the improvement of facilities for egg incubation and larvae growing, and the creation of captive sturgeon breeding stocks. The total output of Russian sturgeon hatcheries is to constitute 80 to 85 million fingerlings of standard weight annually. The North-Caspian Department of Fishery Conservation, Reproduction and Regulation (Astrakhan) and the Caspian Fishery Research Institute (Astrakhan) are to start introducing on a commercial scale hatchery rearing methods to produce larger sturgeon fingerlings, which requires a deepening of fish-rearing ponds.
8. *Increase of the passage of stellate sturgeon to their natural spawning grounds in the Volga River, direct hatcheries to increase artificial reproduction of beluga and Russian sturgeon, and direct hatcheries to form a captive-breeding stock of ship sturgeon*. This will be carried out at the hatcheries of the North-Caspian Department of Fishery Conservation, Reproduction and Regulation and the Federal Centre on Sturgeon Farming.

Dr. Sergei I. Nikonorov, Vice-President, The Inter-Department Ichthyological Commission (CITES Scientific Authority for sturgeons)

A spring and autumn spawning season? Not exactly…

The spawning periods for Caspian sturgeon are frequently described in documents and discussions as the "spring-spawning" and "autumn-spawning" seasons. This can give the wrong impression that sturgeons spawn twice in a year. In fact, sturgeons only spawn in the spring, but there are two genetically different groups that enter the rivers at different times. The first and largest group enters the spawning rivers in the spring, travelling long distances to eventually reach the upstream spawning areas. The second, smaller group enters the rivers in theautumn, moving upstream some distance and choosing a deep, quiet pool in which it will winter and develop its eggs. Once temperature conditions are favourable in the spring, these fishes will be the first to reach the spawning areas, having made part of the journey ahead of the first group. Hatcheries producing young sturgeons artificially are careful to differentiate the two genetically-distinct groups.

The Secretariat

Conserving sturgeons and the sturgeon fisheries in Kazakhstan

The Republic of Kazakhstan is rich in natural resources, but the problems of poaching and smuggling of and illegal trade in wild species threaten the biodiversity of this country. In order to combat this threat and to support legal international trade, Kazakhstan became a Party to CITES in April 2000. The Ministry of Natural Resources and Protection of the Environment is the CITES Management Authority in the Republic of Kazakhstan, and is responsible for implementing the Convention.

The sturgeons (Acipenseriformes) are economically very valuable fishes in Kazakhstan. Four species naturally spawn in the Ural River: the beluga (*Huso huso*), the Russian sturgeon (*Acipenser gueldenstaedtii)*, the stellate sturgeon (*A. stellatus*) and the ship sturgeon (*A. nudiventris*). The protection of sturgeon stocks is a priority for the Government and is achieved through the establishment of regulatory measures, scientific research, ways of enhancing natural and artificial reproduction, and law enforcement efforts against poaching.

The protection of sturgeon species in the Ural-Caspian basin is carried out by 357 employees of the North-Caspian Regional Establishment of Protection of Bioresources, of the Ministry of Natural Resources and Protection of the Environment. During this year, in

Two members of the CITES Management Authority for Kazakhstan, officers of the North Caspian Agency for Environmental Protection, and Dr Jim Armstrong and Mr Stephen Nash of the CITES Secretariat

cooperation with the Russian Federation, authorities have carried out "Operation Sturgeon" in the border areas with the Russian Federation, in part of the Volga Delta. This operation, involving law enforcement, Customs and border authorities, resulted in the seizure of 15 tonnes of illegally caught sturgeon and 857 kg of caviar.

In accordance with the decision taken at the 45th meeting of the Standing Committee (Paris, June 2001), the Government of the Republic of Kazakhstan halted commercial fishing for the autumn period. In support of this, the Ministry, in cooperation with border authorities, launched "Operation Moratorium" in the border regions to ensure no commercial harvesting of sturgeon occurs.

For more than 40 years, assessment of sturgeon stocks in the Ural River and Kazakh waters of the Caspian Sea has been carried out by the Atirau branch of the Kazakh Research Scientific Institute of Fish Facilities. The determination of stocks is based on scientific data collected, in cooperation with Caspian Fisheries Research Institute (KaspNIRKh) of the Russian Federation. In 2001 a stock assessment has been undertaken through the Caspian Environment Programme that will provide data on stocks of sturgeons in Kazakh waters of the Caspian Sea. The Government of Kazakhstan has invited assistance from the Food and Agriculture Organization of the United Nations (FAO) and other agencies or organizations to assist with the monitoring of stocks of sturgeon species in the Caspian Basin.

The Commission on Caspian Aquatic Bioresources was established in 1992, to assist the Caspian States in managing biological resources and assessing territorial waters. It is through this Commission that member States agree to an annual quota for sturgeon fishing, allocated amongst the member States, and based in part on the contribution of each State to the protection and reproduction of sturgeon stocks of the Caspian Sea.

Kazakhstan has also implemented a number of measures to help conserve sturgeon stocks. The catch quota for 2001 was reduced by 20 per cent from the 2000 quota, and the catch is strictly regulated according to specific areas that may only be fished on certain days. This guarantees that mature fish are able to reach their natural spawning areas.

To supplement natural spawning, Kazakhstan also supports the introduction of fingerlings from artificial reproduction. Since 1998 two sturgeon hatcheries have been in operation, which release annually into the Ural River seven million young sturgeons.

Since the Volga River has been dammed and sturgeons have been prevented from reaching the spawning grounds in the upper Volga, the Ural River is the last remaining large river in the northern part of the Caspian with natural sturgeon spawning areas. To protect these areas, the Government has designated a Caspian reserve zone, extending eastwards from the Volga Delta, where economic activities, construction and pollution are strictly restricted. To enhance further the natural spawning of sturgeons in the Ural River, the Government has been dredging channels in the river to facilitate sturgeon movements.

The Republic of Kazakhstan is committed to protecting, managing and developing its sturgeon fisheries. This commitment also includes the suppression of illegal sturgeon fisheries and illegal trade, and the Government is collaborating with the CITES Secretariat to solve the problem of illegal harvest and trade.

M. Turmagambetov, Vice-minister, Ministry of Natural Resources and Protection of the Environment, CITES Management Authority for Kazakhstan

Conserving sturgeon fisheries in Azerbaijan

In Azerbaijan the new Ministry of Ecology and Natural Resources is responsible for the management of sturgeons and the sturgeon fishery, and for implementing the measures outlined in the Standing Committee's decision.

Most of Azerbaijan's sturgeons come from the Cura River, which is located about 120 km south of Baku. Unfortunately, dams have limited access to spawning areas, and heavy siltation of the river, particularly at its mouth, has limited the size and number of fish able to enter the river. Given this reduction in natural spawning capacity, the strategy of Azerbaijan has been to supplement natural reproduction of sturgeons with artificial reproduction.

Starting with the first sturgeon hatchery in the Caspian basin in 1954, three sturgeon hatcheries have been built along the Cura River. These have a combined potential capacity of 20 million sturgeon fingerlings a year. However, lack of funds, deteriorating facilities, flooding of the Cura River and the rising waters of the Caspian Sea have significantly reduced the national output of sturgeon fry. Despite these problems, the Cura River Experimental Sturgeon Hatchery located in Neftchala produced 1,148,800 fingerlings of Russian sturgeon *Acipenser gueldenstaedtii* and 3,361,200 fry of stellate sturgeon *A. stellatus* this year. These young fish were produced from roe extracted from 39 females *A. stellatus* and 8 females *A. gueldenstaedtii*, fertilized by a similar number of males. No suitable beluga *Huso huso* broodstock was received at the hatchery this year and as a result no *Huso huso* fry was produced.

There are six levels of maturity of sturgeon eggs and only eggs having reached the fifth or sixth level can be used for hatching purposes. Eggs are removed from the female, then washed and fertilized, and additives are added to remove the stickiness of the eggs. The fertilized eggs are placed in special trays in an 'incubator', which keeps river water circulating over the developing eggs. The eggs remain in the trays for six to 10 days, at which time they hatch. The fry feed for the first six days on their

yolk sacs, after which they start to feed on tiny organisms. After 20 days, the fry are ready to be moved to tanks or ponds that provide more natural conditions. After a further 20 days of feeding on live food, the fingerlings reach a weight of 2 to 3 g and are released into the river. The young will eventually make their way to the Caspian Sea, and a small percentage of these fishes will survive to adulthood and return to the Cura River.

The sturgeon catch quotas in the Caspian Sea are allocated by the Bioresources Commission of the Caspian Sea, and these quotas are linked in part to the number of young sturgeons a State produces. If Azerbaijan's sturgeon production is not improved, the country risks losing its share of the Caspian sturgeon catch. Under the Azerbaijan Urgent Environmental Investment Project of the World Bank, a fourth and state-of-the-art sturgeon hatchery is being built. This USD 9 million facility will produce 15 million sturgeon fingerlings annually. The design of the hatchery is a combination of the most modern technology developed in recent years in France and the United States of America and of concepts developed over the last 40 years by sturgeon hatchery specialists in Azerbaijan. A site has been chosen, and construction is scheduled to start soon.

Although it is illegal to catch sturgeon in the Caspian Sea, the state fisheries body Azerbalik, now part of the Ministry of Ecology and Natural Resources, authorizes fishermen to catch them in fixed traps just outside the mouth of the Cura River. These traps aim to catch mature breeders returning to the Cura River to spawn. These fishes will supply the initial stock for the new hatchery; and approximately 12 tons of broodstock will be needed to produce the eggs for 15 million fingerlings per year. Although greater numbers of fishes are caught in spring and early summer, production will be based on fishes caught throughout the year. Immature fishes will be held for future spawning. Some young from each year's production will be kept on the farm and raised for future broodstock. The hatchery will produce three batches of young sturgeons each year. The operating costs of the hatchery will be supplied directly from the central Government from a separate budget line in the national budget. The hatchery will be managed by an autonomous public fund that is entirely state-owned and placed under the Cabinet of Ministers.

The Government is still committed to promoting natural reproduction where possible. An inventory of natural spawning grounds was completed by the Government last year, and the Plan of Action for fish production in Azerbaijan includes improving the natural spawning grounds.

The CITES Management Authority of Azerbaijan

Sturgeon facts

Acipenser gueldenstaedtii (Russian sturgeon)

Specimens more than 40 years of age have been recorded, measuring over 2 m in length and weighing 100 kg. However, most wild spawners are aged between 13 and 23 years, spawning every 2 to 3 years. This species also occurs in the Black Sea and the Sea of Azov.

Acipenser stellatus (stellate sturgeon)

This is the smallest of the commercially important Caspian sturgeons, reaching normally 1 m in length and weighing 11 to 12 kg. However, individuals of over 2 m and weighing 50 kg have been recorded. Spawning in the wild occurs at 11 to 16 years of age. This species is also found in the Black Sea and the Sea of Azov.

Acipenser nudiventris (ship sturgeon)

This species is rare in the Caspian Sea. Originally, two populations occurred in the northern Caspian, but only the Ural River population remains. The ship sturgeon can weigh up to 120 kg and measure 2 m in length. Females spawn at 12 to 18 years of age, and every 2 to 3 years thereafter.

Acipenser persicus (Persian sturgeon)

Similar in size and appearance to the Russian sturgeon, this species prefers the warm waters of the southern Caspian Sea and is rarely encountered outside Iranian waters. Sexual maturity is reached at 8 to 9 years for males and at 10 to 14 years for females.

Huso huso (beluga)

This species, the largest of the sturgeons, occurs in the Caspian, Black and Azov Seas. In the Caspian Sea specimens of up to 6 m in length and weighing over 1,000 kg have been recorded. Females reach sexual maturity at 14 to 20 years, with fish 2 m in length and weighing 50 kg. The Volga River has been the main spawning river for this species, but dam construction upstream has limited access to spawning grounds. Today 96 per cent of the Volga beluga originates in hatcheries.

The Secretariat

Whose *Huso* is it?

The sturgeons in the Caspian Sea are a shared resource, and the management of harvests for any shared resource will always be a challenge. How the seawaters are politically divided between the five littoral States is still under intense debate, but as sturgeons are caught in the spawning rivers or, in the case of Iran, in coastal waters, this political debate about ownership of the central portion of the sea is largely irrelevant to the sturgeon fishery.

It is believed that the river a sturgeon will eventually enter to spawn was biologically dictated when the egg was fertilized, but sturgeons will spend 10, 20 or more years of their lives swimming in the sea before considering at which moment they will enter these rivers. Sturgeons caught in the rivers can be considered as stocks of those rivers, but 'ownership' cannot be determined so easily for those caught in the sea. Northern Caspian States claim that coastal catches of beluga *Huso huso* by Iran are impacting negatively on their fishery, as these are fish that breed in the Volga, Ural and other northern rivers. Iran counters that the beluga fishery is today virtually an artificial fishery, with more than 95 per cent of beluga caught being artificially produced, and that its fishery only harvests beluga in reasonable proportion to its active restocking programme.

The Secretariat

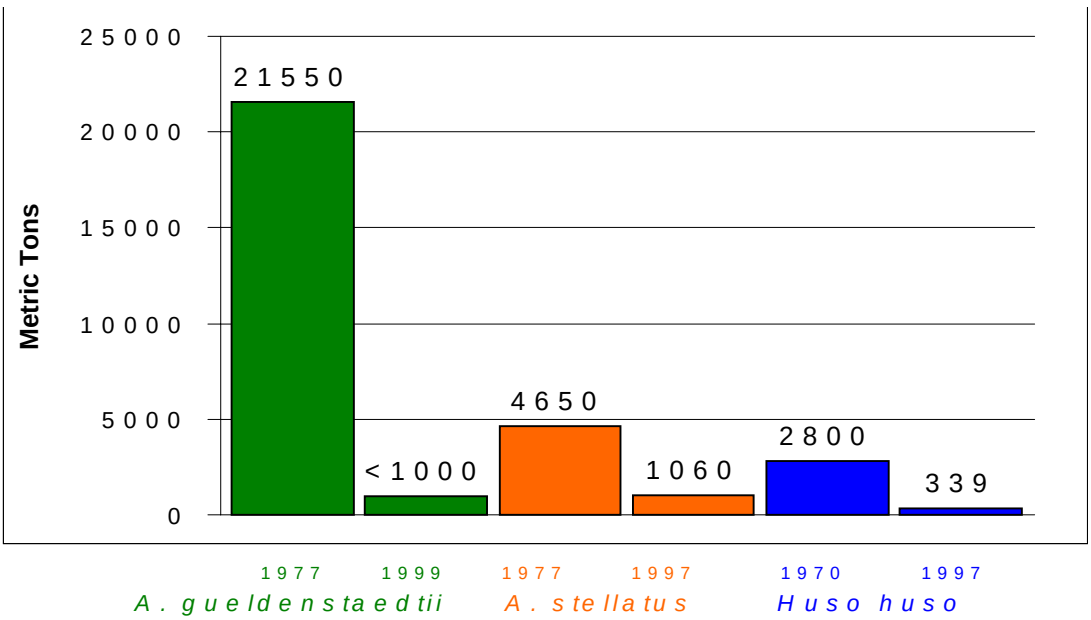
The sturgeon meat trade

Sturgeons produce caviar, but they also produce meat. Most of the meat trade is directed towards domestic markets, and this demand is so great that very little of the 2001 catch quota for meat declared under Decision 11.58, totalling 1,182 tonnes from the Caspian Sea, is exported.

The 2001 catch quota for meat for the Caspian Sea, per species, was declared as follows: *Acipenser gueldenstaedtii*, 362.5t; *A. stellatus*, 539.8t; *A. nudiventris*, 4.47t; *Huso huso*, 235.8t. To place these figures in perspective, overall catches were five times greater in 1994, and 20 times greater in the early 1980s.

The Secretariat

Catches in the Caspian Sea



The Secretariat

What is caviar?

Caviar is the unfertilized roe of certain fish species. The term 'caviar' is mostly used to identify roe from sturgeon species, and 90 per cent of the world's caviar originates from the Caspian Sea. Processing roe into caviar involves removing the eggs from a female that is ready or nearly ready to spawn, gently rinsing the mature eggs, and adding a small quantity of salt. Generally, caviar is sold as one of three varieties known in the trade as sevruga, osietra and beluga. Caviar may be stored fresh, or it may be pasteurized for a longer shelf-life (up to two years). However, all caviar is perishable and must be stored in cool temperatures at between –4º and –2ºC.

The Secretariat

The Persian sturgeon: a model of successful sturgeon management and sustainable use in Iran

Sturgeons are among the most valuable aquatic species in of the world. At present more than 27 sturgeon species are found living throughout the world of which six species, (*Huso huso, Acipenser gueldenstaedtii, A. persicus A. stellatus, A. nudiventris* and *A. ruthenus*) are found distributed in the Caspian Sea and its drainage basin.

Sturgeon catch in the past decade has shown a strong decline, decreasing from 26,800 tons in 1981 to less than 3,000 tons in 2000. However stock status of *A. persicus* has remained satisfactory due to increasing efforts in restocking programmes conducted by the Iranian Fisheries Company.

Being a species that prefers warmer waters than *A. gueldenstaedtii, A. persicus* enters the rivers in the southern shores of the Caspian Sea, particularly the Sefidrud, Gorganrud, Tajen and Babulrud Rivers, to spawn. In autumn and winter this species migrates to warm regions of the south Caspian where the water temperature in these regions is 10 to 20 ºC. *A. persicus* migrates up the Sefidrud River from early April up to May and June, and the autumn race of this species migrates in October and November. Spawning migration of this species ceases with the increase in temperature in summer in the rivers in the southern coasts of the Caspian Sea.

The Iranian Fisheries Company has conducted extensive restocking programmes to increase the population of *A. persicus* fingerlings in the southern shores of the Caspian Sea during the past decade and release of fingerlings into the sea has increased from 2,1 million in 1987 to a maximum of 22.5 million in 1998. Some 13,7 million were needed in 2000.

At present more than 53 tons of Iranian caviar are produced from this species, which represents 57.6 % of the total Iranian caviar production. By comparison, caviar from *A. persicus* comprised only 23.6 % of the total Iranian caviar harvested in 1992.

This endemic species of the southern shores rarely migrates to central and northern regions of the Caspian Sea. Therefore despite over-fishing of sturgeon in the Caspian Sea, the stocks for *A. persicus* have been more or less steady and catch and exploitation have not had a detrimental effect. The catch numbers for *A. persicus* in the past five years have remained stable at approximately 20,000 per year.

Some 19,900 adult specimens of *A. persicus* specimens were caught in 2000. Taking into account the number of *A. persicus* fingerlings released and assuming that 3 % of these fish reach maturity, the adult population of *A. persicus* can be estimated at 540,000.

Available statistics of stock assessment and catch conducted by coastal purse seine show a promising future for *A. persicus* stocks. The sustainability of stocks and suitable exploitation of *A. persicus* are the result of restocking programmes tailored to this species.

Banning the use of gill nets that are known to cause harmful effects on juvenile and immature sturgeon stocks is another effective measure taken by the Iranian Fisheries towards conservation of sturgeon stocks. The Iranian Fisheries has invested about USD 25 million and collected the fishing permits of 6,000 fishermen using gill nets in the Caspian Sea and engaged them in other fishing activities. Apart from this the fishery management has also improved the livelihood of local fishermen by releasing more than 200 million fingerlings of other commercially valuable species, thus providing suitable conditions to enhance and restore *A. persicus* stocks in the Caspian Sea.

Given the economic significance of sturgeon species particularly *A. persicus*, The International Sturgeon Research Institute is carrying out in collaboration with other fishery research centers extensive studies such as stock assessment studies using tagging methods, genetic and molecular markers; cryopreservation of sperm; establishment of a gene bank; biology or pathology. In total more than 40 research projects are underway in 2001 to conserve sturgeon stocks in the Caspian Sea.

The development of aquaculture and the commercial breeding of sturgeons to meet the demands for meat and caviar are among the other activities that began more than a decade ago in order to conserve and restore sturgeon stocks.

Dr. M.R. Hosseini, Management Authority of CITES in the field of sturgeons in Iran

Caviar extraction methods

Caviar is extracted from sturgeon in one of two ways. The traditional method simply involves cutting open a freshly killed sturgeon and scooping out the roe into a waiting container. New methods have been developed for live extraction of roe that do not involve killing the fish, though these are not yet widely used. A small incision is made and the roe is gently squeezed out of the body. Once the small cut is healed, this “Caesarean” method allows the fish to be returned to the wild or to be kept in captivity for future extraction (see “A new method of sturgeon conservation in Russia”). Extracted roe can be used in caviar production or, if at a suitable state of maturity, for hatchery production.

The Secretariat

Caviar criminals

There can be very few species that have been listed on the CITES Appendices with such a history of illegal activities as Acipenseriformes. By the time all sturgeon species were included in 1998, poaching had reached very serious levels, especially in the Caspian Sea. It is estimated that for every ton of fish caught legally, at least five tons are harvested illegally. Some estimates even place the illegal offtake as high as 12 times the legal catch.

CITES has undoubtedly enabled enforcement agencies to move against international trade in illegally-obtained caviar and bona fide dealers have said that they believe there is considerably less poached products available on the international market. However it is not difficult to see why illicit trade continues; 250 g of best-quality caviar costs CHF 2,425 (about USD 1,476) in duty-free airport shops. The demand in the domestic markets alone in some Caspian States simply cannot be met from the reduced legal catch quotas of recent years.

The potentially huge profits to be gained from illicit trade also explain why organized crime and criminal networks are deeply involved. A bombing, which resulted in the death of many Federal Border Guards in the Russian Federation, is believed to have been the work of a criminal group involved in poaching and illegal trade. Poachers often have boats that are considerably faster than those of fishery protection officers. Sophisticated forgery of CITES permits and certificates is not uncommon. Fraudulent use of genuine documents to cover illegal caviar has been discovered many times. Allegations of serious corruption involving a range of officials have been made. One Management Authority even received faxes from an individual who posed as a CITES official and attempted to confirm the validity of false permits.

Considerable smuggling also takes place, where couriers attempt to evade CITES and border controls. The avoidance of duty, by smuggling and false declaration of the value of shipments is of real concern to Customs authorities. Caviar has been declared as salmon roe. Illegal caviar shipments have been detected crossing borders in false panels in motor vehicles, in the baggage compartments of public buses and even under the sleeping compartment of a train. Airline passengers have been found with suitcases so full of caviar that one person could hardly lift them; one such case contained tins weighing a total of 70 kg.

Tackling such determined criminals is not easy and is often hampered by language barriers and a lack of inter-agency cooperation and coordination at national and international levels. There have, however, been major successes. In the United States of America, a company that engaged in large-scale frauds over several years was fined USD 10.4 million and its president was sentenced to 41 months in prison. Several European countries have made important seizures, and continue to do so.

The range of techniques used to fight caviar traffickers and to prevent illegal trade is growing. Interpol and the World Customs Organization routinely issue intelligence briefings to help target smugglers and illicit dealers. DNA profiling is helping to identify false declarations and substitutions in shipments. Communication between Parties, the Secretariat and enforcement agencies is increasing all the time. Labelling systems are soon to be introduced, which should help deter fraudulent shipments and facilitate border control and import inspections.

Information is the key to tackling illicit trade, regardless of the species involved, and Parties are encouraged to communicate with their Interpol National Central Bureau, World Customs Organization Regional Intelligence Liaison Office and the CITES Secretariat.

The Secretariat

Natural sturgeon reproduction in the Ural River

The Ural River is unique in the basin of the Caspian Sea in that its flow is unbroken by dams or other obstructions. This allows for a free migration of sturgeons to their spawning grounds, supporting natural reproduction and the maintenance of natural population structures.

The Ural River is also unique in that extensive natural spawning areas for sturgeon species have been preserved. In 1968 the spawning areas covered 1,687 hectares, with 909 hectares in the main channels and 778 hectares in flooded areas. In recent years the spawning areas have been reduced owing to land use practices. In 1994 the spawning areas covered 923 hectares.

Inspections of the spawning areas were organized out in the autumn of 2000. This work was carried out from Atirau to Bazar-Tobe, 424 kilometres away. The sites on the river-bed were examined for the structure of the soil, siltation, overgrowth and contamination. The result of this study will be an updated quantitative estimate of available spawning grounds. Inspections are ongoing, and the success rate of sturgeon reproduction is being monitored. These inspection and monitoring programme will lead to concrete recommendations for the improvement of these natural spawning areas.

Research on the movement of fingerlings from the spawning areas has shown that as a result of a reduction in spawning grounds in the upper reaches of the river, much of the sturgeon reproduction now occurs in the lower parts of the river, where spawning appears to be less successful, resulting in reduced production. However, while there has been a decrease in the areas available for natural spawning, the real limiting factor is the number of reproducing fishes reaching these areas.

In response to this the harvesting regimes have been adjusted since 1998 to allow 60 per cent of the reproducing fishes to pass through the fishing areas to the spawning grounds, on the basis of fishing and non-fishing days (typically sturgeon harvesting regimes allowed 40 per cent of the adult fishes to pass).

The ideal situation is to allow sufficient numbers of reproducing adults to reach the best spawning areas. This is the most efficient way of increasing reproductive rates. In recent years, the sturgeon stocks in the Ural River have been stable and some species have even started to increase.

The part of the sturgeon life cycle when larvae start to feed is also extremely important. The abundance of food at early stages of development greatly influences their survival, and ultimately determines population numbers. Long-term research is carried out by the Atirau branch of the Kazakh Research Institute of Fish Facilities, and this research shows that young sturgeons have a varied diet. Research also shows that sturgeons are able to feed on benthic organisms in strong currents with almost no visibility, thereby avoiding large predators.

The Ural River is the only remaining large river in the Caspian Basin with still-intact natural spawning areas. Since 1998 Kazakhstan has reduced its fishing levels to allow a greater number of sturgeon to reach the natural spawning areas. However, additional actions are required to protect the populations of certain species, and from 2002 it is recommended that harvests of the ship sturgeon *Acipenser nudiventris* be suspended. The Ural River is the only natural spawning area for this species in the Caspian Sea, and a moratorium on catching this species will help restore its population.

Dr Y. A. Kim, Director, Atirau branch of the Kazakh Research Institute of Fish Facilities

A brief history of sturgeons & CITES

Acipenser brevirostrum	listed in Appendix I in 1975
Acipenser fulvescens	listed in Appendix II in 1975, deleted from Appendix II in 1983, listed under Acipenseriformes spp. in 1998
Acipenser oxyrhynchus	listed in Appendix I in 1975, transferred to Appendix II in 1979
Acipenser sturio	listed in Appendix II in 1975, transferred to Appendix I in 1983
All other Acipenseri*dae*	listed in Appendix II in 1997, effective 1 April 1998

At CoP10 (Harare, Zimbabwe), Germany and the United States of America submitted a proposal to include 23 species of the Acipenseriformes, in Appendix II, to join those already covered by the Convention. The proposal was adopted by consensus, thereby including all sturgeon species under CITES. The listing entered into force on 1 April 1998 to allow Parties time to put in place all necessary controls and management plans, prior to its implementation.

The listing of sturgeons was accompanied by the adoption of Resolution Conf. 10.12, Conservation of sturgeons, which assists range States and consumer countries in implementing the provisions of the Convention for these valuable fishes. The Resolution urges range States and Parties to encourage scientific research to promote the sustainability of sturgeon fisheries in the Eurasian region, to curtail illegal fishing and exports and to promote regional agreements between range States to bring about proper management and sustainable utilization of sturgeons. Range States are encouraged to provide names of legal exporters of sturgeon products, and are requested to consider the feasibility of developing annual quotas for sturgeon products. The Resolution asks Parties to consider setting a maximum allowance of 250 g of caviar per person as a personal effects exemption under CITES Article VII.

The Resolution recommends that the Secretariat, in consultation with the Animals Committee, explore marking systems for sturgeon products, and that the Animals Committee consider sturgeons under the Review of Significant Trade. This Review resulted in primary and secondary recommendations for 10 species of sturgeons, which were communicated to the range States in February 2001. At its 45th meeting (Paris, June 2001), the Standing Committee agreed on the recommendations of the Secretariat for Caspian Sea stocks of *Acipenser gueldenstaedtii*, *A. nudiventris*, *A. stellatus* and *Huso huso*, in document SC45 Doc.12.2. Two Decisions of the Conference of the Parties have been adopted. Decision 11.58 instructs that starting from 1 January 2001, range States should declare coordinated intergovernmental level annual export and catch quotas per basin, or biogeographical region where appropriate, for all commercial trade in specimens of Acipenseriformes. Parties should inform specimens to report to the Secretariat on the progress made to implement the measures agreed upon in the Resolution.

The Secretariat

Important reminder

Decision 11.59 instructs all Parties engaged in trade in sturgeon and paddlefish specimens that they should report to the Secretariat on the progress made to implement the measures agreed upon in Resolution Conf. 10.12 (Rev.) and on their national management strategies for Acipenseriformes prior to the 18th meeting of the Animals Committee (8-12 April 2002).

The Secretariat

A new method of sturgeon conservation in Russia

Intensive development of commercial sturgeon breeding requires new thinking and new ways of managing operations. With long-range planning and strict regulation, sturgeon breeding is approaching a level of sophistication similar to that of cattle breeding and other domesticated species. With increasing pressures on wild sturgeons, the ability to maintain captive populations of females that can produce eggs for reintroduction, aquaculture and the caviar trade using live-extraction methods is especially timely.

Some methods of live-extraction of roe from sturgeons are already known. The most practical, especially for large fishes such as sturgeons, is a caesarean-section type method developed and improved by I.A. Burtsev.

Research on live-extraction methods for extracting roe from living sturgeon (wild and captive) has been carried out for several years by the BIOS Research Centre and by the KaspNIRKh Research Institute. Live extraction is highly advantageous over the traditional means of extracting roe that kills the fish.

Live extraction of eggs from captive populations will allow the reduction, and eventual elimination of the need to obtain eggs from the wild. This is rational from an economic and ecological point of view. This will enhance the conservation impact of commercial captive breeding, and the extraction methods will not kill the fish.

The success of the BIOS Research Centre with its methodologies for wild parent domestication and live-extraction of roe has been well received by private enterprises. In 1999 the Astrakhan-based enterprises of Karon-TM Ltd. and Russian caviar Ltd, together with Sevkasprybvod (the Caspian division of the fish protecting Directorate of the State Committee of Fisheries), and with the scientific support of KaspNIRKh, launched an experimental programme to create a captive reproductive stock of sturgeons (beluga Huso huso and Russian sturgeon Acipenser gueldenstaedtii) that will supply roe for use in wild stock restoration and for the caviar industry. A specialised fish-breeding company, “Raskat,” was formed to run this programme. This experimental programme successfully extracted roe from live breeding stock in 2001.

This has launched a new era of sturgeon breeding in Russia, with extraction of roe based on captive and not wild-caught fish. This approach will reduce demand on wild fish and guarantee the market with a supply of high quality roe for caviar and for maintaining captive breeding stocks.

Roman Ivakhnenko

State Committee for Fisheries of the Russian Federation (CITES Management Authority for Acipenseriformes)

Views from the NGO community

From Caviar Emptor

"If we can save the sturgeon, we can save the Caspian Sea…" This sentiment, expressed by an NGO scientist in the Caspian region, echoes the concern and hope that many in government, industry, academia, and the NGO community share for the Caspian ecosystem. Sturgeon stocks in the Caspian Sea face various threats. An integrated recovery plan aimed at restoring sturgeon habitat, combating poaching, curbing pollution and providing alternate sources of income for people in the region is urgently needed. These actions will require a sustained commitment from Governments, the fishing industry, scientists and NGOs throughout the region and beyond for many years. However, the beluga sturgeon may be extinct in a matter of a few years. Emergency action to halt the international trade in beluga caviar is critical to help prevent extinction of this species while effective management, enforcement and habitat restoration programmes are developed and implemented. Some argue that banning international trade will deprive hatcheries and legal fishermen of income, and drive the caviar trade further underground. But continued trade in Russian and stellate caviar can provide income for legal fishermen and funding for state conservation efforts while comprehensive restoration planning to restore all Caspian sturgeon fisheries gets underway.

Lisa Speer, Ellen Pikitch, Liz Lauck, Vikki Spruill & Shannon Crownover

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From TRAFFIC

Recent developments in the CITES forum have been positive steps towards achieving sustainable international trade in specimens of Caspian sturgeons, but export quota reductions or international trade bans alone cannot achieve the conservation of these species and sustainable trade in their products. TRAFFIC believes additional measures are needed. A standardized stock assessment methodology is needed as an integral part of the regional fisheries management plan. This would allow for coordinated catch and export quotas to be appropriately set, based on non-detriment findings. Also required is a standardized assessment of restocking efforts which takes into account fingerling migration patterns, survival, and growth rates, so that restocking can be adjusted for optimum results. A comprehensive assessment and effective control of domestic markets are needed, as are strict implementation and enforcement of national legislation, including establishing transborder anti-poaching units. Development of DNA reference samples of all Acipenseriformes would enable indisputable identification of species and of parental stocks of captive-bred specimens, and a thorough consultation with commercial stakeholders in the development of caviar labeling systems would ensure such systems can be fully implemented, particularly with regard to issuing re-export labels.

TRAFFIC

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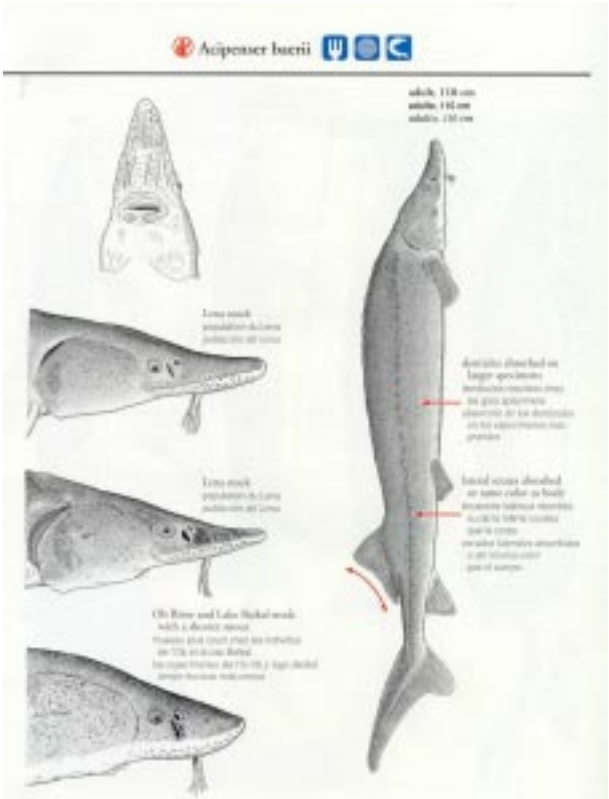
A new CITES identification guide for sturgeons and paddlefish

Environment Canada has created another excellent manual as part of their CITES Identification Guide series. This guide is published with the collaboration of the CITES Secretariat, TRAFFIC Europe, the Rufford Foundation and the Ministère de l'aménagement du territoire et de l'environnement of France. It presents, in the three working languages of the Convention, the means to identify sturgeon and paddlefish specimens and the products thereof in trade, and is designed to be used by any CITES enforcement officer, from beginner to expert.



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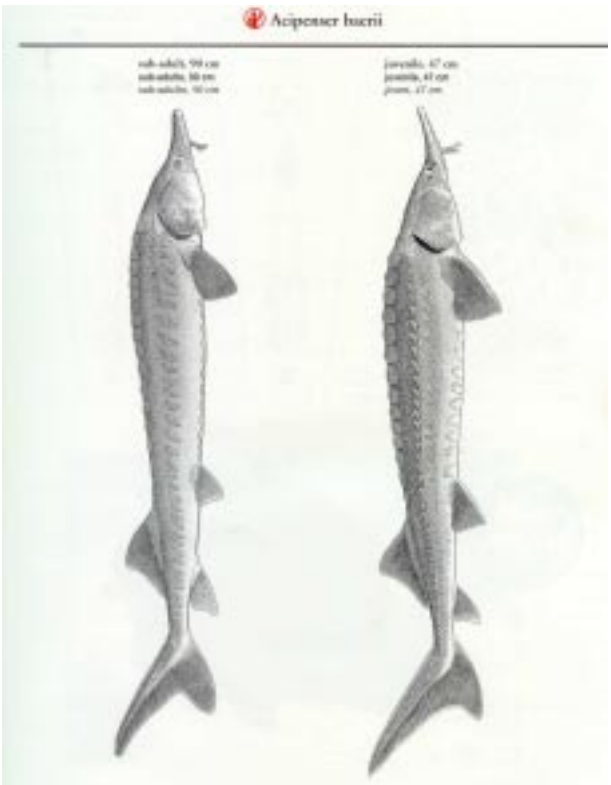

CITES calendar of events

2001

3-8 December	Regional legislative workshop/capacity-building workshop for CITES Scientific Authorities of western Africa in Abidjan, Côte d'Ivoire

2002

18-20 February	Technical workshop on the conservation of seahorses and other syngnathids in Cebu, Philippines
March	SIDS capacity-building workshop (Venue to be determined)
11-15 March	Forty-sixth meeting of the Standing Committee in Geneva, Switzerland
25-28 March	Freshwater turtles and tortoises technical workshop in the People's Republic of China (tentative venue)
8-12 April	Eighteenth meeting of the Animals Committee in Costa Rica (tentative venue)
13-17 May	Twelfth meeting of the Plants Committee in Leiden, the Netherlands
21-23 May	Second dialogue meeting of the hawksbill turtle Caribbean range States in the Cayman Islands
3-15 November	Twelfth meeting of the Conference of the Parties to CITES in Santiago, Chile

The Ambassador of Chile to the United Nations, Juan Enrique Vega Patri, and the Secretary-General of the CITES Secretariat, Willem W. Wijnstekers, signed a Memorandum of Understanding on 20 November 2001 in Geneva that prepares the way for the hosting of next year's meeting of the Conference of the Parties to CITES in the Chilean capital of Santiago.

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