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27 July 2004

TO: Chief, Division of Scientific Authority
FROM: Frank A. Chapman, Associate Professor, University of Florida
RE: Proposed Rule-Beluga sturgeon-FR/Vol.69, No. 124/2004

I submit the following comments, to become part of the record, for the proposed rule to control the trade and aquaculture of Beluga sturgeon in the United States (FR Vol.69, No. 124/2004).

In April 2004, the USFWS listed Beluga sturgeon as a Threatened Species throughout its range under the Endangered Species Act (69 FR 21425). In June 2004, a special rule was proposed by the USFWS (69 FR No. 124, June 29, 2004) to exempt only range countries (e.g., those bordering the Caspian and Black Seas) from having to obtain threatened species permits to continue the customary commercial fishing, aquaculture, and international trade of meat and caviar of Beluga sturgeon. The exemption is valid as long as these countries provide written management plans, annual reports, and copies of national fishing laws on a specified schedule. In other words, under the proposed rule, only range countries will be allowed to commercially produce Beluga sturgeon without a requirement for threatened species permits. However, those outside the range countries, as the United States (U.S.), will be required to obtain special endangered species act permits that considerably restrict and most often prohibit the commercial trade of the listed species.

Unbelievable: with the exception of the required written reports, it is business as usual in the range countries where the threatened species exist, but the listing significantly restricts and deters development of an emerging Beluga sturgeon industry in the U.S. that could be quite profitable to United States farmers and protect the species in the wild. The USFWS could stop American farmers from raising Beluga sturgeon for commercial purposes, while still allowing countries on the Caspian and Black Seas to produce, internationally trade, and ship their Beluga products to the United States without Endangered Species Act (ESA) special permits.

Petition by F.A. Chapman

-Do not adopt the special rule as written, but amend it to specifically authorize/permit, and exempt from endangered species permits (as range countries), the commercial production of captive-bred Beluga sturgeon (especially in the U.S.) and commercial trade of their products (e.g., meat and caviar). The cultivation of sturgeon for both meat and caviar provides great potential to protect species in the wild, increase farm profits for U.S. farmers, and reduce economic and product deficit in U.S. seafood trade.

Summary

-The proposed rule must exempt U.S. farmers from ESA permits. If the proposed rule is accepted as is, the U.S. will have significant adverse effects to compete with foreign-based enterprises and have little, if any, impact on the conservation of Beluga sturgeon in the wild.

-The USFWS has many inconsistencies in the interpretation and management of the Endangered Species Act, especially dealing with sturgeon species. Considering the information provided in this document and the USFWS proposed special rule, it is not clear how restrictions on a single species (i.e., Beluga) in the U.S., protects native sturgeon, when other foreign sturgeon are being cultured, and even exempted (i.e., Bester hybrid) in the proposed special rule. It is not clear how a U.S. regulation that exempts range countries from ESA permits, but not farmers in the U.S., protect Beluga in the wild and the U.S. ability to compete with foreign-based enterprises.

-Stimulating domestic aquaculture of Beluga sturgeon can assist in protecting the species in the wild. Aquaculture of pure Beluga sturgeon can drastically reduce dependence of products from the wild. Product supply can meet demand, prices for caviar will be reduced and stabilized, reducing the incentive to harvest from the wild which is the foundation for any agriculture production system and protection of Beluga in the wild.

USFWS comments: "We have not proposed exemptions for commercial beluga aquaculture outside the range countries because:"
"We believe such an exemption could undermine the economic incentives for sustainable harvests of wild *Huso huso* in the range countries."

"We believe that aquaculture or grow-out of foreign sturgeon species in the United States poses a risk to the recovery efforts for several native sturgeon species listed under the Act or under interstate recovery plans." however, the USFWS further states "neither the threatened listing for beluga sturgeon nor the special rule affects trade in bester sturgeon products directly".

"Non-range country aquaculture of the species, if exempted from provisions of the Act under this special rule, could utilize *Huso huso* broodstock from the range countries without any direct benefit to wild populations."

The USFWS further states:

"According to our analysis, no U.S. entities are involved in the commercial aquaculture of pure (i.e., non-hybridized) *H. huso* products such as caviar and meat....."

"This rule would not have an annual effect on the economy of \$100 million or more; would not cause a major increase in costs or prices for consumers, individual industries, and would not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of United States-based enterprises to compete with foreign-based enterprises."

F.A. Chapman commentary

-Most sturgeon scientists (including those at Caviar Emptor) recognize aquaculture as a viable tool for the conservation of sturgeons (see International Conferences and Proceedings on Sturgeon and Paddlefish e.g., Milwaukee 1983, Bordeaux 1989, Moscow 1993, New York 1994, San Francisco 1996, Piacenza 1997, Oshkosh 2001, and report by Caviar Emptor entitled Roe to ruin: the decline of Caspian Sea sturgeon and the road to recovery). Sturgeon aquaculture is agriculture, and the purpose is to provide a reliable supply and safe product for human consumption. In other words culture of Beluga sturgeon can have the potential to supply a great portion of the demand for caviar presently available only from the wild. Aquaculture does not require collection/take of brood fish from the wild. Already in the U.S. there is a sufficient number of Beluga sturgeon to develop a successful aquaculture industry; in Florida we have one farm with about 70 individuals.

-Sturgeon aquaculture of foreign sturgeon species is officially permitted in Florida and is an environmentally sound and sustainable practice! Farmers in Florida are certified by the Florida Department of Agriculture and Consumer Service (DACS) and abide to strict legal and environmental laws (Aquaculture Best Management Practices Manual, 2000). Aquaculture of foreign sturgeon species is practiced with up most consideration to protection of native sturgeon and DACS has assessed the potential risks of culturing native and non-native sturgeon species in Florida (Proceedings of the Florida Sturgeon Culture Risk Assessment Workshop, 2000). The State of Florida closely regulates potential discharges of pollutants from sturgeon farms and enforces a strict monitoring and reporting system for water quality, and health management of the stocks (e.g., Assessment of the Effectiveness of Florida Aquaculture Best Management Practices for Sturgeon, 2002). Furthermore, DACS has an established certification program for cultured sturgeon and its products to ensure their origin. Farm raising of sturgeon in Florida, including the Beluga sturgeon, is arranged primarily in 'closed' production systems, which are landlocked, and have a water recirculating (reuse) system to minimize water use, reduce effluent discharge, and minimize escapes and potential of disease transmission to wildlife. The water is treated with advanced mechanical and biological filtration systems, and the effluent is discharged/sprayed to a field; all within farm boundaries. One of the farms further treats the water through a constructed-wetland and reuses the water, considerably minimizing water use and improving water quality. At the present time, sturgeon farms are experimenting with diets made primarily from proteins extracted from soybean and corn to minimize use of fishmeal produced from captured fisheries in the ocean.

-Although figures are difficult to estimate, current farm production estimates worldwide approximate 3,000 to 5,000 metric tons of sturgeon meat and caviar. California alone now produces some 1,350 tons of sturgeon meat. World caviar production from aquaculture accounts for some 10-15 tons (F.A. Chapman personal notes, other unpublished sources, and FAO Yearbook of Fishery Statistics-2001). These are exceptional figures, within a decade sturgeon aquaculture already accounts for more than a

third of the world catch. These figures also reflect the high demand and value for the species, and potential for further aquaculture development.

- Technology for culture of sturgeon became available only in the 1960s' and not until the 80s' did it become well established. Only during the last 10 years have commercial operations begun to produce a constant supply for consumers. The White sturgeon (*A. transmontanus*) is presently the principal species in cultivation. Farming operations for the White sturgeon were established in the 1980s in the U.S. (California) and later expanded into Italy. Other important cultured species are the Siberian (*A. baeri*), Sterlet (*A. ruthenus*), the Russian or Osetra (*A. guldenstadti*), the Adriatic or Italian sturgeon (*A. naccarii*), and a hybrid sturgeon known as Bester (a cross between a female Beluga and male Sterlet). For cultivation, the Bester was preferred over Beluga since it matured earlier e.g., Bester @ 6-8 years instead of Beluga @ 10 years and over.

-Beluga sturgeon is the most valued of all sturgeon and restriction of its commercial culture in the U.S. will have significant adverse effects on competition, employment, investment, productivity, innovation, and ability to compete with foreign-based enterprises. Sturgeon farming for meat alone has great potential for increasing farm profits. Farm gate for meat may range from \$2.5 to \$3.8 per pound of whole sturgeon as compared to \$0.75 for catfish, \$1.4 for tilapia, and \$2.1 for hybrid striped bass. The domestic industry for sturgeon meat could easily surpass the \$100 million dollars. California alone now produces close to 1,500 tons of sturgeon meat, and 5 tons of caviar, worth several million dollars. Within the next few years, farmers in Florida will reach these production levels.

Several inconsistencies with the USFWS analysis are addressed below:

-Aquaculture of foreign sturgeon species is permitted in the U.S., including Florida and other States. Furthermore, commercial aquaculture of the White sturgeon in the west coast occurs within the presence of the Endangered Species White sturgeon, Kootenai River, and culture of the Bester hybrid is exempted in the rule; USFWS contradicting their own justification for supposedly protecting native sturgeon species.

-Contrary to USFWS statements, at least two farms in Florida have businesses for production of Beluga sturgeon. Both farms have made substantial facility investments (over 10 millions dollars) and have been in operation before the year 2000. As mentioned earlier, one farm has some 70 individuals in all size ranges (15 to 70 pounds).

-The State of Florida permitted the culture of non-native sturgeon in 1996 and since that time the Beluga sturgeon has been the preferred species. It has been difficult in the past for commercial operations to obtain pure Beluga sturgeons because their desirable value in the international trade and restrictions from exporting countries. The technology to raise the species in captivity developed only in the last 10 years. For example, at the University of Florida we matured a male and female pure Beluga sturgeon in approximately 6.5 years. Worldwide, especially in Europe (e.g., Italy, Belgium, Holland, Germany, Spain, Poland, Israel) many farms are now culturing Beluga sturgeon and within the next few years, Beluga products will be available from non-range countries.

-Farmers in Florida now raise the principal species in the world trade, the Osetra, Sevruga, and Beluga sturgeons. They also raise the Siberian, Adriatic, Sterlet, and hybrid Bester. Several thousand pounds of these species are in cultivation. Major obstacles for industry development are availability of domestic stocks, and the time required for animals to reach sexual maturity (usually 3-4 years in males and 6-8 years for females). Domestic stocks are raised following strict regulations and produced in 'closed' systems, which are land-locked, use water recirculating systems and covered tanks to reduce possibility of escapement and disease transmission to native aquatic life.

-It is not clear the basis for the USFWS to state the U.S. is "currently responsible for 80 percent of beluga caviar trade". Certainly, the U.S. ranks among the top in caviar imports, but most likely Germany imports more caviar, including Beluga than the US. Together with Germany, France, Belgium, and Japan, these countries import the bulk of the world beluga caviar (various sources including CITES reports, and interviews with major international caviar dealers e.g., Petrossian, TSAR Nicoulai and Marky's Caviar). In addition, Russians themselves are significant consumers of Beluga sturgeon products. Furthermore, it is quite ostentatious for the USFWS to imply the U.S. sturgeon aquaculture industry can supply the world market for Beluga products, threatening their existence in the wild.

-Contrary to USFWS statements, in the U.S., prices for Beluga sturgeon caviar have increased from traditional \$880-\$1320 per pound to over \$2,000 (Mark's Caviar) since the USFWS regulatory petitions. An unnecessary monopoly of Beluga sturgeon products is also encouraged with adoption of the proposed ruling.

Supporting information

-I have dedicated my academic career to studying the natural history and biology of sturgeon species, both for their conservation in the wild and aquaculture potential for benefit of society and the environment. I am a faculty member in the Department of Fisheries and Aquatic Sciences at the University of Florida, in Gainesville, Florida. My research, teaching, and extension responsibilities, nationally and internationally, provide stewardship both for conservation of sturgeon species in the wild and domestic aquaculture practices.

-Last month, I spent almost two weeks in Moscow and Astrakhan visiting with private and government personnel exchanging ideas and sharing technologies related to the propagation of Beluga sturgeon in the Caspian Sea. One of the most enlightening of their new practices was the partnership/cooperation established between government officials and private industry. The government has supplied the private industry with a basic infrastructure (e.g., buildings and previous hatcheries) and established both a conservation and industrial commercial propagation program for Beluga sturgeon. As they explained, the government, with

revenues from sales of caviar, meat, and juveniles, pays for stock augmentation programs. The private industry is paid by individual piece produced and released into the Caspian Sea. Two sizes are produced (2-3 g and 20-30 g) insuring high survival of juveniles and recruitment to the adult stock. The private companies also obtain revenues from Beluga products sold principally within the country and exports primarily to former Soviet Union republics, Europe, China, etc. Curiously, they were not concerned about prospect regulations by the US since most revenues are obtained directly from internal markets in Russia and European sales. I traveled together with a Florida farmer farming Beluga sturgeon, and commercial dealer of gourmet foods, including caviar. We saw literally millions of Beluga sturgeon embryos incubating in hatcheries, and juveniles destined for stock enhancement and sale in local markets to be raised for meat. The hatcheries also had hundreds of live Beluga sturgeons maintained as brood stock. These brood stocks are maintained alive to produce a new caviar product, without need to kill the female. A technology that can drastically reduce the number of females collected from the wild to produce the coveted caviar. This technology can also be adopted for female sturgeon in the farm. Sharing and observing this technology further emphasizes the many benefits and mutual trust that can be gained by parties on opposite sides of the world to utilize a renewable resource and protect the Beluga sturgeon in the wild. Aquaculture activities related to Beluga sturgeon and other species in the US will permit our continued exchange programs. Arrangements are currently being made to conduct annual visits, (with at least 1-month stays) to carry out experiments of mutual benefits.

-I have attached a copy of my CV, and cover pages of Proceedings of the Florida Sturgeon Culture Risk Assessment Workshop (2000), Aquaculture Best Management Practices Manual 2000, and Assessment of the Effectiveness of Florida Aquaculture Best Management Practices (BMP's) for Sturgeon 2002, which clearly outline regulatory mechanism for environmentally sound aquaculture practices in Florida. Also attached is a copy of cover of summary project description by one of the private firms. Please consider the entire documents as part of the official record, as well as pictures from recent trip to Russia. I am willing to discuss comments made in this letter and submit the entire documents, if necessary.

Cordially,