Sturgeon reintroduction in the Rhône river : Problematic and preliminary studies

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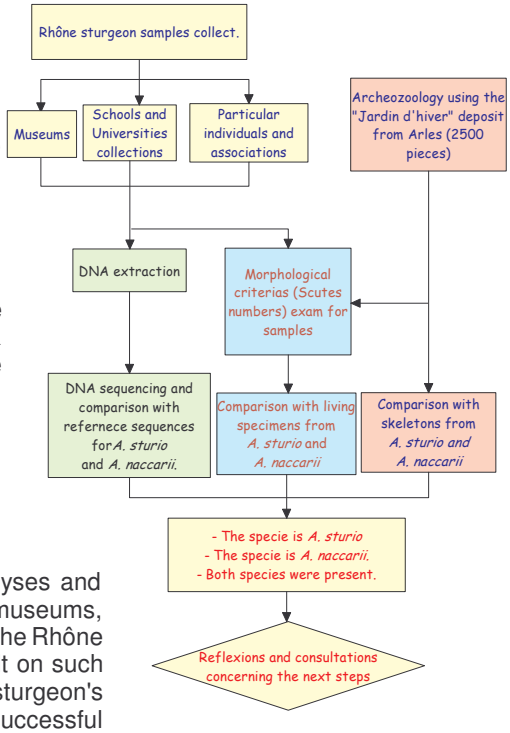
Figure 1 : Sturgeon fishing near Avignon.
(Archives DIREN - délégation de bassin RMC)

CONTEXT

Several sturgeon populations were found in France at the beginning of the XX th century. The Master Plan for River works (SDAGE) concerning the Rhône river watershed states that historically, the upstream limit for sturgeon is between Valence and Avignon, more than 150 km away from the estuary. Sturgeon population from the Rhône river (Figures 1 and 2) seems to have finally disappeared between 1970 and 1975 without any evidence about the specie's identity (Tabardel 1994).

At present the scientific community argues over the limits in Spain of the distribution areas of the European sturgeon, *Acipenser sturio* and the Adriatic sturgeon, *Acipenser naccarii*, as well as the potential sympatry that would occur in the Mediterranean sea (Garrido-ramos et al. (1997) ; Elvira & Almodovar (2000) ; De la Herran et al. (2004)). This is the reason why the sturgeon specie(s), which were historically recorded in the Rhône River must be clearly and soundly identified before any reintroduction work takes place. This project is funded by the Environment ministry, local and regional funding and a private funding agency.

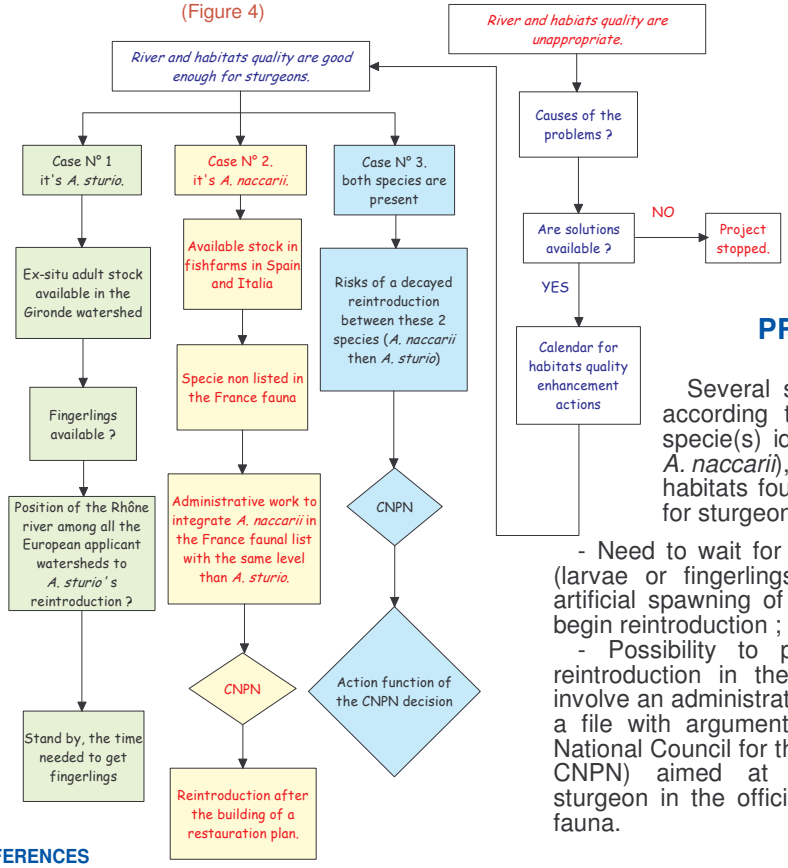
Project unfolding.
(Figure 3)



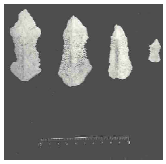
PROJECT LAYOUT

The first step of this project is the sturgeon specie(s)' identification using both genetic analyses and archeozoology (Figure 3). Contacts will be taken with fishermen, anglers, private individuals, museums, taxidermists and universities to collect samples from preserved sturgeon specimens certified from the Rhône river. The goal is to collect the more samples as possible because genetic analyses are difficult on such material and results are not assured. A parallel study will be done on habitat quality in relation to sturgeon's needs. This will allow an assessment of the suitability of the downstream part of the Rhône river for successful reintroduction of sturgeon.

Project layout.
(Figure 4)



ARCHEOZOOLOGY



Sturgeon dermal scute and pectoral fin rays from the "Jardin d'hiver" deposit in Arles, 2500 pieces (N. Desse-Berset)

PROSPECTS

Several solutions are possible according to the results of the specie(s) identification (*A. sturio, A. naccarii*), and to the suitability of habitats found in the Rhône river for sturgeon (see Figure 4) :

- Need to wait for *A. sturio* specimens (larvae or fingerlings) originating from artificial spawning of the ex-situ stock to begin reintroduction ;
- Possibility to prepare *A. naccarii* reintroduction in the Rhône river. This involve an administrative work (building up a file with arguments addressed to the National Council for the Nature Protection, CNPN) aimed at integrating Adriatic sturgeon in the official list of the France fauna.

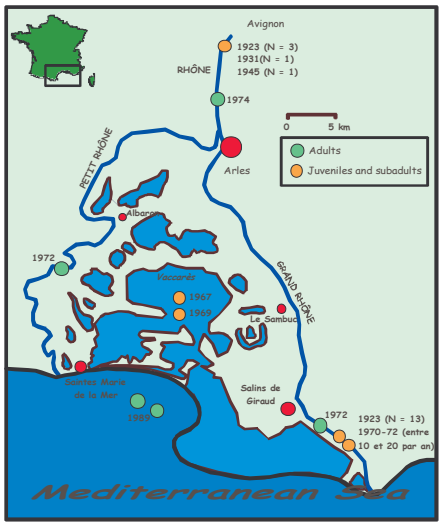


Figure 2 : Last sturgeons captures location in the Rhône River inventoried by Tabardel (1994).

REFERENCES

Elvira, B. & Almodovar, A. (2000). Further observation on the morphological characters of *Acipenser sturio* L., 1758 from the Iberian Peninsula: A comparison with North and Adriatic Sea populations. Boletín Instituto Español de Oceanografía 16, (1-4): 89-97.

De la Herran, R., F. Robles, E. Martinez-Espin, J. A. Lorente, C. R. Rejon, M. A. Garrido-Ramos, and M. R. Rejon. 2004. Genetic identification of western Mediterranean sturgeon and its implication of conservation. Conservation Genetics 5:545-551.

Garrido-Ramos, M. A., Soriguer, M. C., De La Herran, R., Jamilena, M., Ruiz Rejon, C., Domezain, A., Hernando, J. A. & Ruiz Rejon, M. (1997). Morphometric and genetic analysis as proof of the existence of two sturgeon species in the Guadalquivir river. Marine Biology 129: 24-36.

Tabardel, M. (1994). Le point sur la situation de l'esturgeon (Acipenser sturio L.) en Méditerranée occidentale et possibilités de réintroduction dans le Rhône. Mémoire de fin d'études. Report. Rennes / Arles: E.N.S.A. Rennes, 57 pp.

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