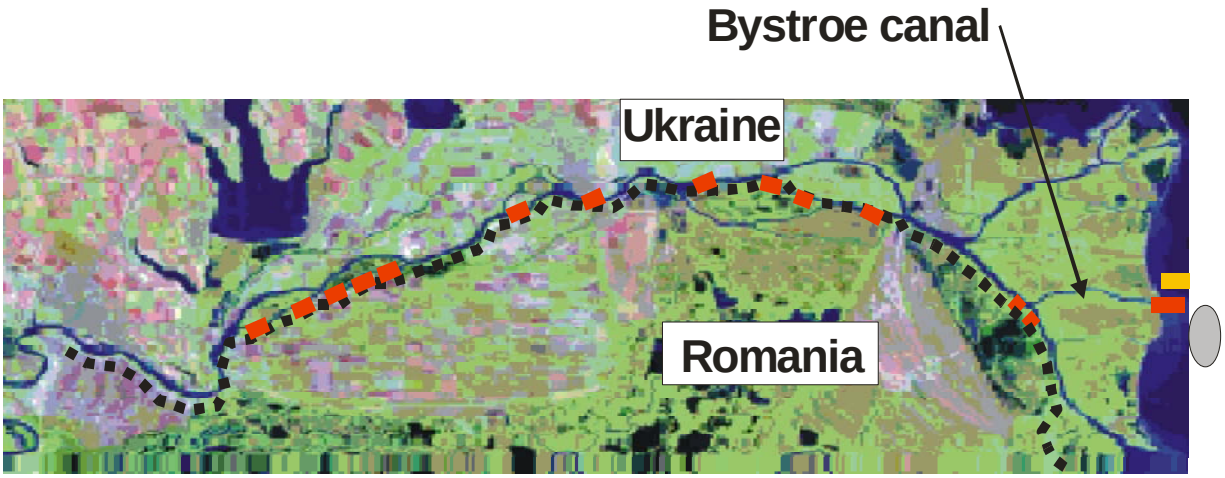
MINISTRY OF ENVIRONMENT AND WATER MANAGEMENT
DANUBE DELTA NATIONAL INSTITUTE
FOR RESEARCH & DEVELOPMENT

165, Babadag Street, 820112 Tulcea, Romania
Tel: (+40-240) 531520/524546; Fax: (+40-240) 533547

E-mail:<office@indd.tim.ro>



COMMENTS

TO ANNEXES NO. 15-28 PREZENTED BY THE UKRAINIAN EXPERT AT THE THIRD MEETING OF THE INQUIRY COMMISSION ON THE LIKELY SIGNIFICANT TRANSBOUNDARY IMPACT OF THE UKRAINIAN DEEP-WATER NAVIGATION CANAL DANUBE-BLACK SEA IN THE CONTEXT OF ESPOO CONVENTION, 1991

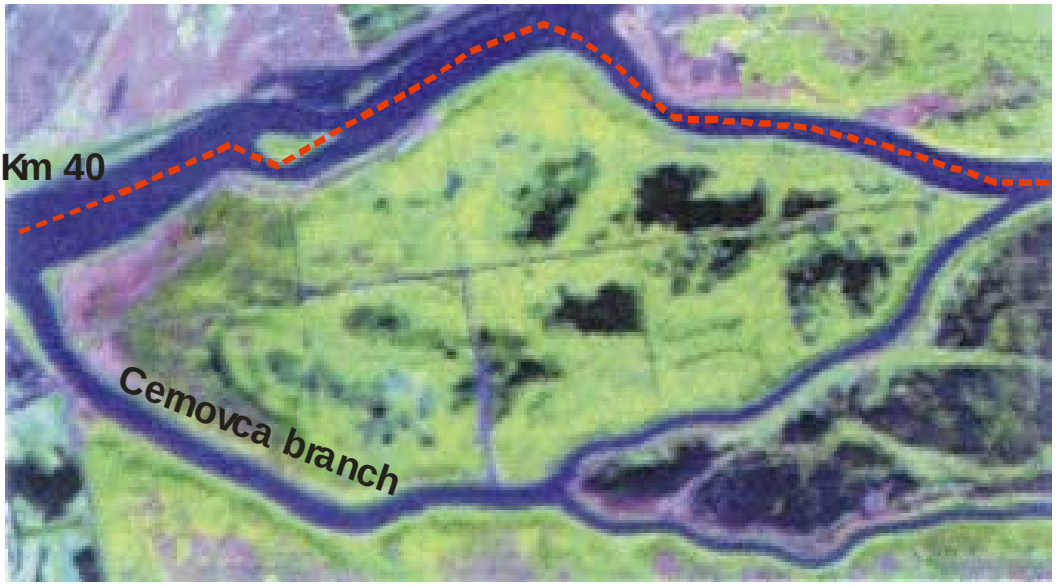
Author: Dr. Mircea Staras
Danube Delta National Institute
Tulcea, Romania

December 2005

Comments on Documentation presented by the Ukrainian expert at the third meeting of the Inquiry Commission (Geneva, 28 th October)

- **On Annexes 15, 16, 17**

The technical characteristic of the canal are welcomed for a proper assessment of the likely transboundary impact.
Comparing the disposition of the rifts on map and the profiles, some of the rifts have already naturally the designed depth of 7,2 m and did not need to be dredged, even they have been identified as ,,rifts".
Question: Did this canal have a real technical design based on field measurement before starting the works of water depth or the sections provided refer to a preliminary phase (phase I) and rifts are subject to subsequent dredging?.
There are many reason the sections provided refer only to a phase I, because previous Ukrainian reports mentioned the depth of 7,2 m for vessels draught of 5,85 m as phase I but the final depth will be 8,13 m (!) allowing navigation for vessels draught of 7,65 m.
As to the received cross sections, at a first view, the deepest dredging section is at Km 37,0-37,5 which would increase the hydraulic section of the main Chilia branch with about 300 m^2 comparing to 2800 m^2 before dredging. Subsequent dredges of the section Km 20,5-39,0 for a final depth of 8,13 m, would increase the hydraulic section with another 100-120 m^2.



Border and dredging sections, Chilia arm

This could cause changes in water distribution in detriment of secondary Cernovca branch located in the Southern part and consequently the hydrology of the neighboring sensitive areas.

Conclusions:
-The final profiles, including all subsequent phases must be available to the Inquiry commission and external experts to avoid further meetings, expertise, expenses.
-The final depths should refer to certain water regime (minimum?) or should be referred to a certain elevation system (Baltic or Black sea) to allow modeling /scenarios.

- **On Annex 25**

Additional dredging requirements due to siltation of the new seaward access canal, additional costs, additional impact.

- **On Annex 26 (results of monitoring)**

-point 9. If the impact on water quality was limited to a 1 km river section downstream dredging site (as stated), having in view the length of the dredging sites is about 47 km along to the border (maps-Annex 15), the water quality of the Chilia arm was affected in proportion of 45% of its length. However, based on the results of transnational monitoring network, significant changes of water quality parameters were not recorded. Sampling downstream dredging work on Sept. 29th 2004 has shown increased values for manganese and phosphorous comparing to the upstream values. Bottom fauna is likely to be affected by dredging activities, including adult sturgeons migrating upstream in spring and autumn and young sturgeons migrating downstream in summer and active feeding with benthic invertebrates.

-point 10. It is stated that the fraction of fine-grain material disposed at marine spoil dump that creates the turbid plume (<0,005 mm) is a s small as 1,06 % whereas according to Annex 24 this fraction represents 25.7% (3,2 %+ 22,5 %). This contradictory data should be clarified for a correct assessment of the likely movement of sediments from dumping area to the South.

-point 11 and 12. (no evidence of significant impact on benthic fauna)
Data on hydrobiological surveys at the monitoring points as shown in Annex 6 of Ukr. Report, Feb. 2005 should support this statement and should be available for Inquiry commission and its external experts.

-point 13 and 14.
The likely/unlikely impact on migratory fish species as sturgeons or Danube herring can not be derived or assessed from size or weight structure (as stated), and just in the year of disturbances. The impact of changes of habitat features can not often be perceived immediate but can be predicted based on similar cases elsewhere (including experience of Sulina navigation Canal) and relevant literature was cited in the Romanian Report of Feb. 2005. The impact of smoothing the bottom by dredging, disturbances by noise during execution and annual maintaining works, food depletion by irregular salt water intrusion is not as spectacular and visible as the case of spilling poison substances in the water.
Some results of the long term systematic monitoring of sturgeon adults and fingerling flow to the Sea performed by DDNI are shown in Annex 1 (see also (http://rosturgeons.danubedelta.org).
The migration of adults and recruitment level of Acipenser guldenstaedti (Russian sturgeon or Danube sturgeon) in 2004 and 2005 were the lowest in the history but is premature to conclude the causes. Future monitoring aims to reveal relationships between spawning success/recruitment, and the driving natural and anthropogenic factors.

The Ukrainian report of Feb. 2005 (pag.17) mentioned that the canal project includes a breeding plant for sturgeons to compensate ,,the damage to fish fauna". That proves the Ukrainian experts took into consideration the likelihood of this impact.

-point 17 and 18
The Ukrainian report mentions (pag. 28) that the population of Sandwich tern and Common tern nesting in 2005 on Ptichya island ,,would be similar to the 2004 nesting population".
This is still a confusing matter.

Previous report (Ukrainian Rep. Feb. 2005, Annex 26, page 28) mentioned a ,,dramatic reduction" of reproduction of these migratory protected species in 2004 comparing to previous years due to disturbance by dredging activities and sensitive species to noise ,,decrease in proportion". Other statement mentioned that the population remained the same as in the previous year.
However, a field visit in the area of Pticya island and meeting with ornithologists from Biosphere Reserve would clarify this item. They declared in a WWF film the species of tern have been severe disturbed and the birds left their nests.

- **On Annex 27**

The origin of the Pticya island are sediments transported from Bystroe mouth by North-South marine currents. By building the protective dam (1040 m/Phase I and 2830 m/Phase II), the sandy sediments are likely to remain in the area and the siltation process at the mouth and seaward access canal will be likely more active than before. In the same time, the erosion process of Pticya island will be stronger and no more compensated by transport of new sediments from Bystroe mouth area.

It is doubtful this protective dam will have envisaged positive effect on maintaining of navigation depth and protecting Pticya island (as stated in Ukr. Report, Feb, 2005 Annex 5).

- **On Annex 28**

This annex is a good introduction to the Chilia Delta with a sound literature review.
Some mistranslation or mistyping at point 5 (page 52 of the report, 14-15 cm/s and up to 1 m/s would be the correct values).

Correct and important remarks in Annex 28 of the Ukrainian expert's Report:

-the N-S marine currents transport sediments until Romanian and Bulgarian shores (the width of this current is 50-75 miles);

-the effect of construction of the Deep-Water Navigable canal will strengthen or weaken the natural processes (conclusion on.9);

Annex 1

Results of monitoring programme for sturgeons in Romania

1. The age structure of the adult population migrating in Danube

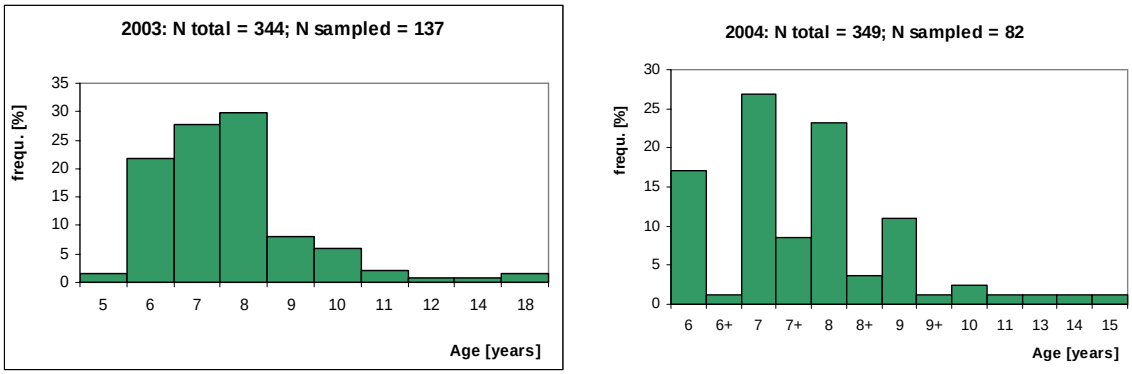


Figure 1 : Age class structure in female stellate surgeons captured in Romania in 2003 & 2004

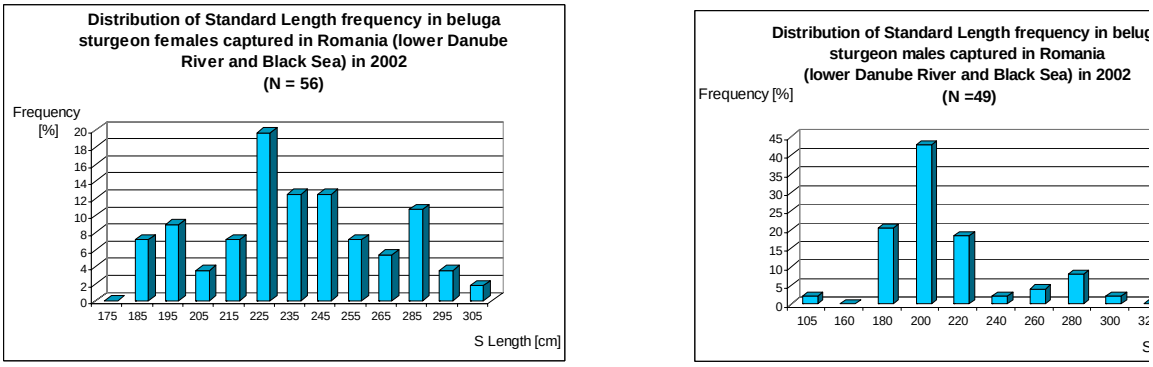


Figure 2: Distributions of Standard Length classes in beluga sturgeons captured in Romania in 2002

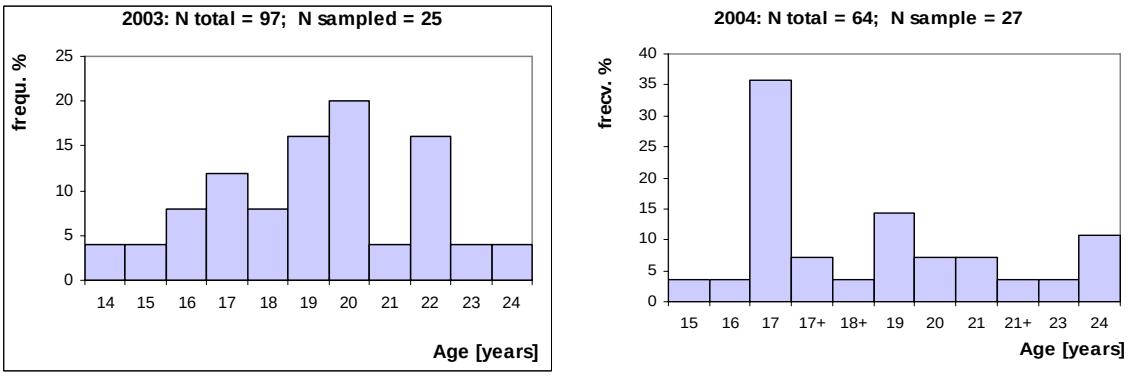


Figure 3: Age class structure in beluga sturgeon (mixed sexes) captured in Romania in 2003 & 2004

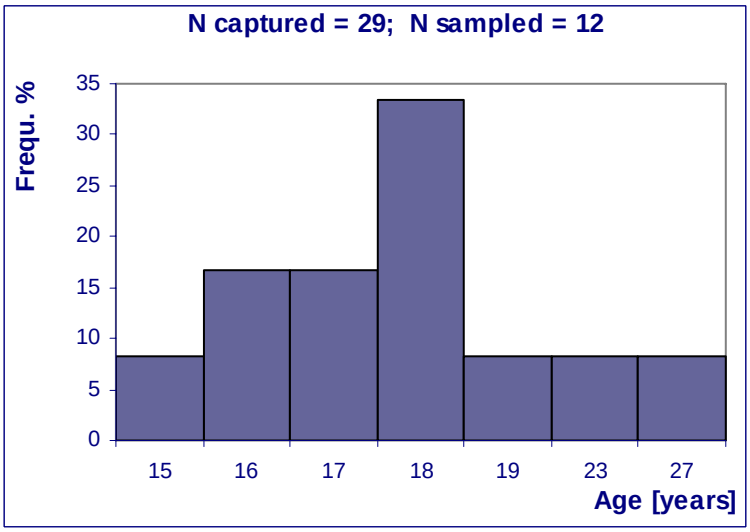


Figure 4: Age class structure in Russian surgeons (mixed sexes) captured in Romania in 2003.

2. Assessment of natural recruitment of sturgeons in Danube

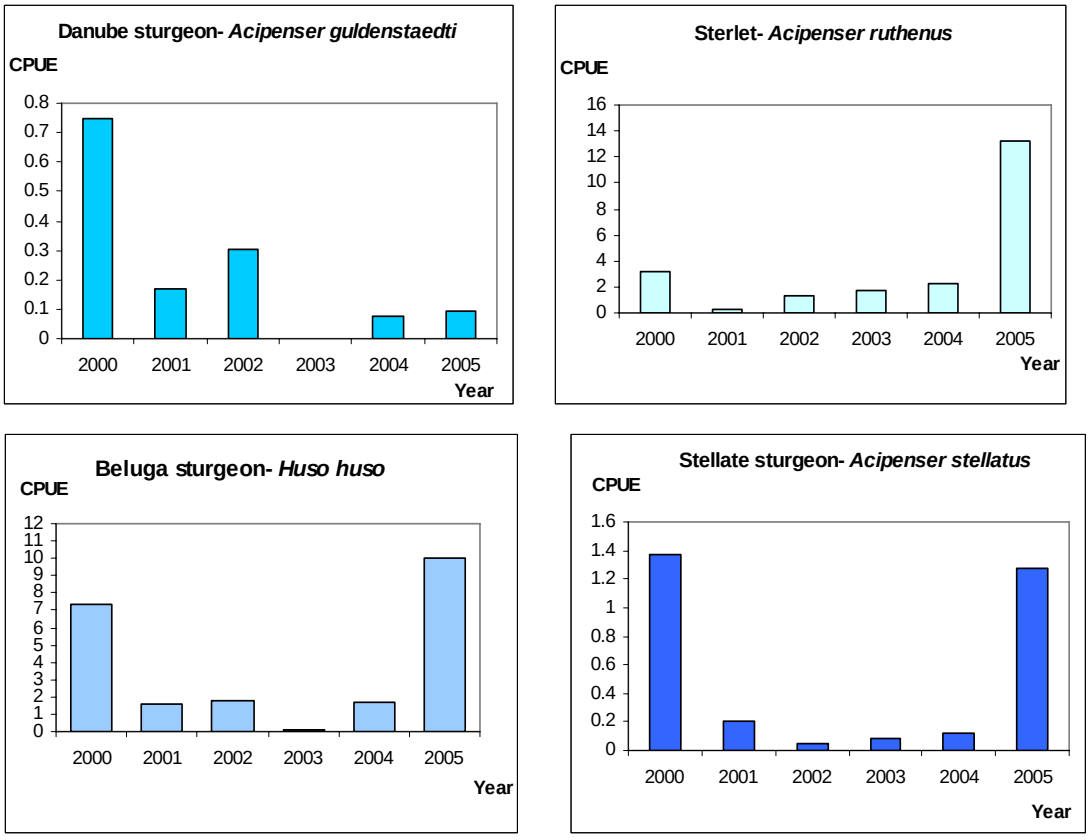


Figure 5. Natural recruitment of different sturgeon species in the lower Danube River during 2000 – 2005 assessed by monitoring downstream migration of YOY at river Km 119 [represented as Juvenile Production Index (JPI) graphs]

CPUE – catch per unit of fishing effort [No of YOY captured by fishing with a 96 m long, 20 mm mesh sized gill net drifted over 850 m strech of the Danube River at river km 119]