ACTA ZOOLOGICA BULGARICA
Acta zool. bulg., 55 (2), 2003: 91-94

Spawning Sites of Beluga Sturgeon (*Huso huso* L.) Located along the Bulgarian-Romanian Danube River stretch

Milen Vassilev*

Abstact: Thirteen spawning sites of Beluga sturgeon were located in the Lower Danube River between river km 755 (Petrich Island) and river km 840 (Vrav Village) in May 2002. These were situated at a depth of 9-22 m on the gravel and the coarse sandy substrate. The current velocity near the bottom varied from 0.9 to 1.4 m/s. The Danube spawning sites of Beluga sturgeon are not completely utilized. The quantity of roe varied from 15 to 60 pc/m^2 (26 pc/m^2 at average).

Key words: Danube River, Beluga sturgeon, spawning sites

Introduction

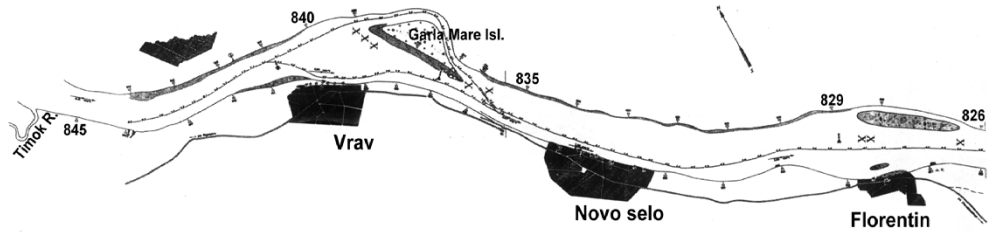
Beluga makes the longest migrations among the anadromous sturgeon fishes. In the Danube River it ascended to the Austrian part and even to the German stretch - river km 2320 (Siebold, 1863). The main spawning sites of Beluga were located between river km 1766 and river km 1866 of the present Slovak-Hungarian part (Hensel, Holcik, 1997). After the construction of the Iron Gates Dam 1 (river km 942 in 1972) and the Iron Gates Dam 2 (river km 863 in 1984) the natural migratory way of Beluga sturgeon was interrupted and shortened more than twice. Despite all, the Danube remains the most important river for the natural reproduction of Beluga and other sturgeon fishes in the Black Sea region.

During the last years it was supposed that the main spawning grounds of Beluga were situated downstream close to the Iron Gates 2. But in practice concrete spawning sites were not established in this sector till 2002. Kynard et al. (in press) announced the location of 5 potential spawning sites of Beluga sturgeon in the middle part of the Lower Danube River between river km 150 and river km 600.

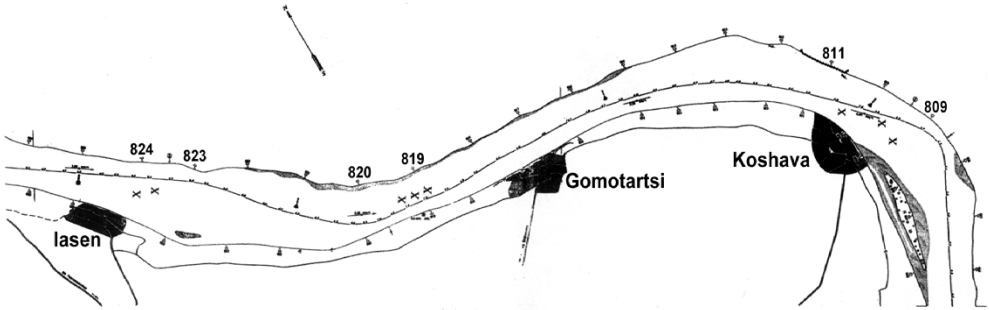
Material and Methods

We considered spawning sites are the places where the fertilized roe was gathered. The samples were collected on 9-15 May 2002 by dragnet with a width of 0.6 m and a mesh size of 1.5 mm. Species identification of roe was made according to Tanasyichuk (1964).

*Institute of Zoology, Bulgarian Academy of Sciences, 1 Tsar Osvoboditel Blvd, 1000 Sofia, Bulgaria, e-mail: milenvassilev58@yahoo.com



a



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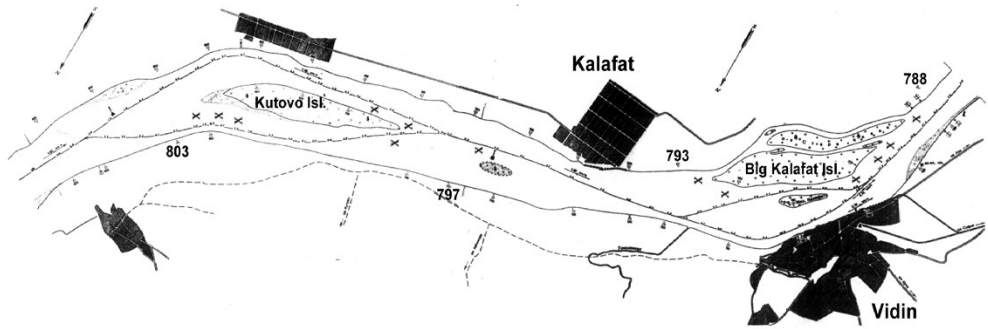

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Fig. 1. (a, b, c). Lokated spawning sites of Beluga stugeon along the Bulgarian - Roumanian Danube River stretch.
X - founded fertilized roe

Results and Discussion

The abundance of Beluga population in the Danube River is maintained only by natural reproduction. Therefore the information about the location and the state of spawning sites is very important. Thirteen Beluga's spawning sites were located between river km 755 (Petrich Island) and river km 840 (Vrav Village) (Fig. 1). They are situated as follows: river km 840-835 (Garla Mare Isl.); rkm 829- 826 (Florentin Vill.); rkm 824 -823 (Yasen Vill.); rkm 820-819; rkm 811-809 (Koshava Vill.); rkm 803-797 (Kutovo Isl.); rkm 793-788 (Big Kalafat Isl.); rkm 786-781 (Bogdan Isl.); rkm 778-777; rkm 775-774 (Botevo Vill.); rkm 768-766 (Desa and Dovlek Isls.); rkm 764-763 (Dobrina Isl.); rkm 760-755 (Petrich Isl.). The total length of the stretch of the Danube River downstream from the Iron Gates Dam 2 where the

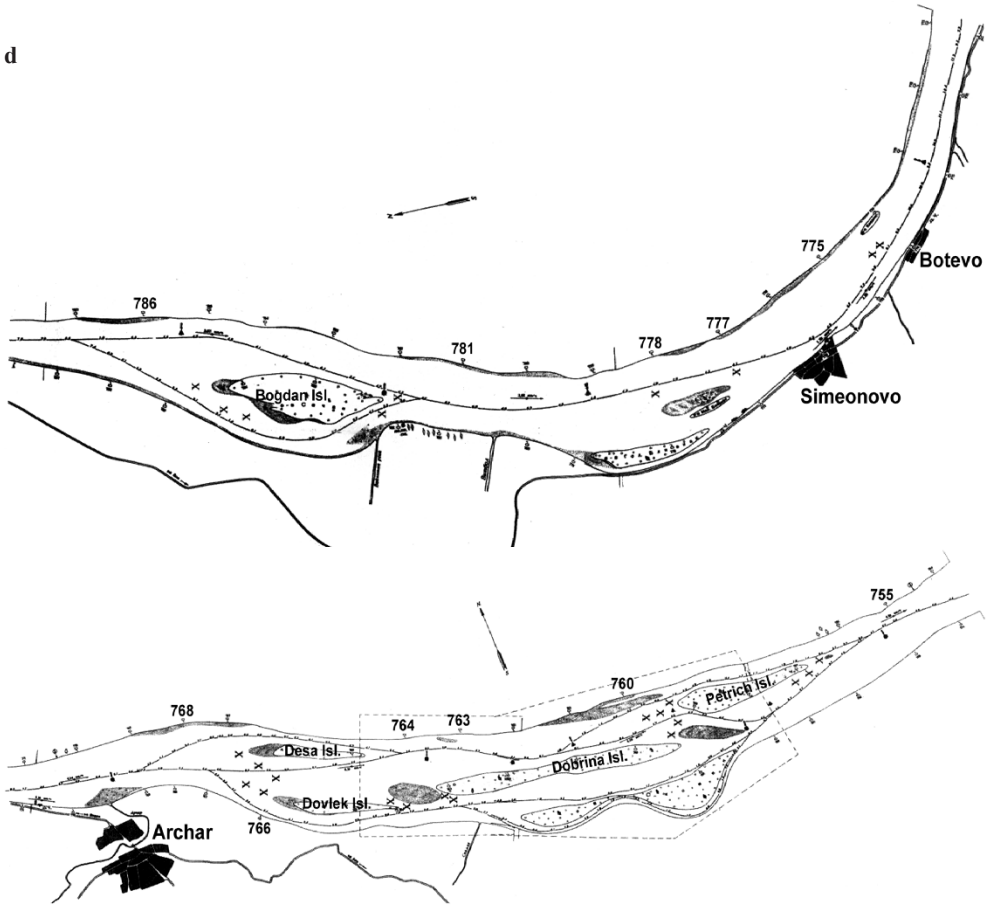

Fig. 1. (d, e). Lokated spawning sites of Beluga stugeon along the Bulgarian - Roumanian Danube River stretch.
X - founded fertilized roe

main contemporary spawning grounds for Beluga sturgeon are situated is about 110 km. Approximately 85-90 km of this stretch is situated between the Bulgarian and the Romanian riversides. About 85 % of the Beluga catch in the Bulgarian Danube River section is made between river km 690 and river km 845.

The spawning sites located were at a depth of 9-22 m on a gravel and coarse sandy substrate with a strong, but "soft" stream. The current velocity close to the bottom varied from 0.9 to 1.4 m/s. The temperature of water was 13-15^{0}C. The incubation of fertilized roe in such temperature continues about 6-7 days (Detlaf et al., 1981).

The quantity of roe varied from 15 to 60 pc/m^2 (26 pc/m^2 at average). Novikova (1993) considered 500 pc/m^2 an optimum number of roe. According to this indicator the Danube spawning sites of Beluga sturgeon are not completely utilized. The main reason for this is the insufficient number of Beluga spawners which reaches the spawning sites. A similar information was published for the Volga River (Khodorevskaya, Novikova, 1995; Khodorevskaya et al., 2000). According to Novikova (1993) at least

60 % of Beluga spawners must reach the spawning sites. For the present we don't know the exact number of mature Belugas entering the Danube River for spawning.

Acknowledgements: This study was realized with the financial support of the Ministry of Environment and Waters of the Republic of Bulgaria.

Received: 11.02.2003
Accepted: 22.04.2003

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Локазилирани мъстилища на моруната (*Huso huso L.*) в долното течение на река Дунав

Милен Василев

(Резюме)

През месец май 2002 г. бяха локализирани тринадесет мръстилища на моруна в долната част на река Дунав между 755 ркм (о-в Петрич) и 840 ркм (с. Връв), на дълбочина между 9 и 22 м. Предпочитан субстрат е едропясъчно-чакълестото дъно, на места със силно, но "меко" течение. Средната скорост на течението варираще от 0.9 до 1.4 м/сек, в зависимост от мястото и дълбочината. В река Дунав естествените мръстилища на моруната не се използват напълно. Числеността на оплодения хайвер варираще между 15 и 60 бр/m^2.