

Fish assemblage in the middle cours of the Kupa river in the area of MHE Ilovac

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Introduction

The objectives of this paper are to determine the qualitative and quantitative composition of the fish community, and distribution of native and non-native fishes in the area of the of the mini-hydroelectric power plant Ilovac on the middle cours of the Kupa river near the dam Zaluka. The ichthyological area of the river Kupa belongs to the Danube River Basin and to the NATURA 2000 ecological network.



Figure 1. Mini-hydroelectric power plant Ilovac on the middle cours of the Kupa river

Material and methods

The samples were collected by fishing boat and with a SUSAN 1030n NP electrofishing device. Fish community of the MHE Ilovac area was collected and analyzed in the May of 2019. All caught fish were determined on the basis of external morphological characteristics with the help of determination keys (especially Kottelat and Freyhof 2007, Povž and Sket, 1990). Sampling are done above and below the dam of MHE Ilovac, the sampling itself lasted 3 hours. Covered area of direct hunting habitat estimated at about 1600 m² on the upper side and the same area on the lower side of MHE Ilovac. Depth in the catch area was 1 to 4 meters.



Figure 2. Fish passage in function on MHE Ilovac.

Conclusion

The ichthyofauna of the area of the MHE Ilovac on the middle course of the Kupa river near the dam Zaluka is richest in species from the Cyprinidae family, and it is also habitat for the three endemic species. The endemic species and non-native species hold a significant share in the fish community of the area of the MHE Ilovac.

Results and Discussion

A total of 963 individuals were caught of which 19 species from 14 genera, from five families Balitoridae, Cobitidae, Cyprinidae, Siluridae, and Centrarchidae were found. The dominant species was Chub *Squalius cephalus* which takes up 21.8%, followed by Spirlin *Alburnoides bipunctatus* with 18.4%, the least represented is Prussian carp *Carassius gibelio* with 0.2% of total number of fish caught. During this research, three endemic fish species Danube gudgeon *Gobio obtusirostris*, Balkan spined loach *Cobitis elongata*, and Dunabe roach *Rutilus virgo* was recorded. Endemic species takes up 14.7% of total number of fish caught. As well as two invasive alien species (IAS) Pumpkinseed *Lepomis gibbosus* and Pseudorasbora *Pseudorasbora parva*. Non-native species in the area of MHE Ilovac hold a significant share in the fish community with 10.4 % of total number of fish caught. Of the non-native species, only the Pseudorasbora was recorded above the dam, while below the dam it was recorded Pseudorasbora, Pumpkinseed and Prussian carp. Of the total number of species caught, ten are highly rheophilic species, two are neutrophilic and the rest are limnophilic. The carp family (Cyprinidae) is the most dominant group of fish which takes up 89.5% within the existing ichthyocenosis, while the least represented is Catfish *Silurus glanis* with only six individuals. No representatives of Percidae, Salmonidae, Petronizomidae, Esocidae and Cottidae were found in the study area.

Table 1. Fish community of the MHE Ilovac area in 2019.

Species	Abundance	Percentage
<i>Alburnoides bipunctatus</i>	177	18,4%
<i>Alburnus alburnus</i>	173	18,0%
<i>Alburnus sarmaticus</i>	8	0,8%
<i>Barbatula barbatula</i>	27	2,8%
<i>Barbus balcanicus</i>	4	0,4%
<i>Barbus barbus</i>	38	3,9%
<i>Carassius gibelio</i>	2	0,2%
<i>Chondrostoma nasus</i>	10	1,0%
<i>Cobitis elongata</i>	14	1,5%
<i>Cobitis elongatoides</i>	22	2,3%
<i>Gobio obtustirostris</i>	121	12,6%
<i>Lepomis gibbosus</i>	73	7,6%
<i>Rhodeus amarus</i>	14	1,5%
<i>Romanogobio albipinnatus</i>	4	0,4%
<i>Romanogobio kessleri</i>	4	0,4%
<i>Rutilus virgo</i>	6	0,6%
<i>Silurus glanis</i>	210	21,8%
<i>Squalius cephalus</i>	31	3,2%
<i>Pseudorasbora parva</i>	25	2,6%
19 species in total	963	100%

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