

ASPECTS ON THE QUANTITATIVE AND QUALITATIVE COMPOSITION OF BICAZ LAKE ICHTHYOFAUNA

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INTRODUCTION

The purpose of this study was the determination of quantitative and qualitative composition, the ecological state of the original species and of those introduced by man in Bicaz Lake, which, undergo continuous transformations because of annual variations of water level and of the position of the mid-altitude lake in a mountainous area.

Previous investigations on the different aspects of the composition and evolution of the ichthyofauna of Bicaz Lake allow us the realization of a comparative study to point out the modifications occurred from the origins of the lake until now.

Thus, during the first years from its formation, the ichthyofauna was represented by a number of 25 species (Matei D. and Dimitriu M., 1963); after about 15 years of existence were recorded only 19 species (Battes K., 1974); after about 37 years of existence were mentioned 14 species (Miron L. and Simionescu C., 1997). Because of the diminution of the number of species it becomes necessary a periodical surveillance of quantitative and qualitative reports between the different ichthyofaunistic species.

MATERIAL AND METHOD

There were set up 5 sampling equipments to take samples from the gulf of Potoci (golful

Potoci); the fish ponds of the piscicultural farm Potoci, Secu, Ceahlau, the Tașca tunnel.

At each fishing were used seines of a) 20 m long and 2.5 in width, the diameter of mesh of 13 mm; b) 30 m long and 5 in width, the diameter of mesh of 18 mm; c) 20 m long and 3 m in width, the diameter of mesh of 22 mm.

The seines were laid in the water close to the 5 sampling equipments, from 5 pm to 6 pm and were pulled out in the morning between 6 am -7 am, being laid parallel with the shore. Biometrical and gravimetrical research of the ichthyofaunistic species determined: overall length, standard length, circumference and weight.

RESULTS AND DISCUSSIONS

According to the data presented in Table 1 the majority of the species from Bicaz Lake belong to the Cyprinidae. This family is the most numerous (8 species) not so much for frequency as for distribution (all the studied areas). One species belongs to Percidae and one to Salmonidae.

The report of the frequency of the species is: the bleak (*Alburnus alburnus* L) 57.32%; the roach (*Rutilus rutilus* L) 10.04%; the bream (*Abramis brama* L) 0.6%; the grudgeon (*Gobio obtusirostris* Val) 1.44%; the barbel (*Barbus barbus* L) 0.2%; the crucian carp (*Carassius gibelio* Bloch) 0.2%; the chub (*Leuciscus cephalus* L) 3.55%; the broad snout (*Cohondrostoma nasus* L) 2.77%; the perch (*Perca fluviatilis* L) 1.8%; the trout (*Salmo trutta fario* L) 1.9%.

Table1. Absolute abundance (e.g. collected) in the sampling points of the Bicaz Lake, during the period 17.08 - 20.09. 2005

Sampling points	Sampling date	The number of collected fish species											
		<i>Salmo trutta lacustris</i> L	<i>Oncorhynchus mykss</i> W	<i>Perca fluviatilis</i> L	<i>Gobio obtusirostris</i> Val	<i>Rutilus rutilus</i> L	<i>Abramis brama</i> L	<i>Leuciscus cephalus</i> L	<i>Cohondrostoma nasus</i> L	<i>Alburnus alburnus</i> L	<i>Carassius gibelio</i> Bloch*	<i>Barbus meridionalis</i> Risso	Total
The gulf of Potoci	17.08.05	-	-	4	6	3	-	-	-	41	1	1	56
Piscicultural farm Potoci	20.08.05	-	5	11	-	4	-	-	-	25	-	-	45

Secu	15.09.05	-	-	33	10	16	-	8	7	72	-	-	146
Ceahlău	18.09.05	-	-	32	10	23	3	6	5	36	-	-	115
Taşca tunnel	20.09.05	1	3	6	-	2	-	3	1	100	-	-	116
Total		1	8	86	26	48	3	17	13	274	1	1	478

*Fish caught by fish hook in front of the gulf of Potoci

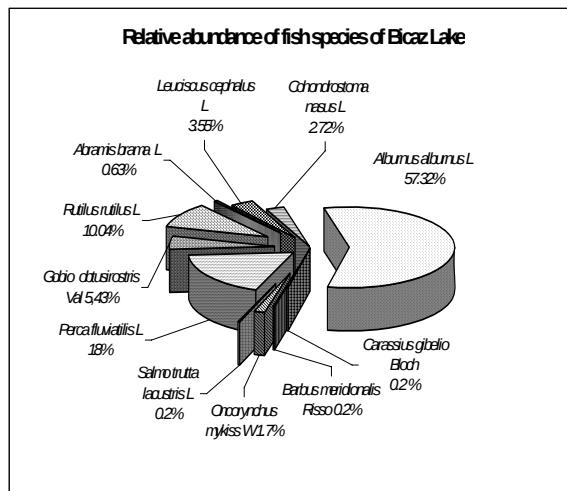


Table 2. Qualitative composition of the storage lake Bicaz , 1962-2005

Family/Species	Qualitative composition				
	V. Ionescu		K. Battes	L. Miron C. Simionescu	
	1962	1967	1968-1973	1995-1996	2005
Fam. Salmonidae					
<i>Salmo trutta fario</i> L	-	+	-	+	-
<i>Salmo trutta lacustris</i> L	+	-	+	+	+
<i>Salvelinus fontinalis</i> M	-	+	(+)	-	-
<i>Oncorhynchus mykiss</i> W	+	-	+	+	+
<i>Hucho hucho</i> L	+	+	+	+	-
<i>Coregonus lavaretus</i> L	+	+	(+)	-	-
<i>Coregonus albula ladogensis</i> Berg	+	+	(+)	-	-
<i>Thymallus thymallus</i> L.	+	-	-	-	-
Fam. Cyprinidae					
<i>Rutilus rutilus</i> L	-	+	+	+	+
<i>Leuciscus cephalus</i> L	+	+	+	+	+
<i>Phoxinus phoxinus</i> L.	+	-	+	-	-
<i>Alburnus alburnus alburnus</i> L	+	+	+	+	+
<i>Alburnoides bipunctatus</i> Bloch.	+	(+)	(+)	-	-
<i>Abramis brama</i> L	-	+	+	+	+
<i>Chondrostoma toxostoma</i> L	+	+	+	+	+
<i>Gobio obtusirostris</i> Val	+	+	+	(+)	+
<i>Barbus barbus</i> L	+	+	+	(+)	-
<i>Barbus meridionalis</i> Risso	+	+	+	-	+
<i>Carassius gibelio</i> Bloch	-	-	-	(+)	(+)
Fam. Cobitidae					
<i>Barbatula barbatula</i> L	+	-	(+)	-	-
<i>Sabanejewia balcanica</i> Karam.	+	(+)	+	-	-
<i>Cobitis taenia taenia</i> L	+	(+)	(+)	+	-
Fam. Percidae.					
<i>Perca fluviatilis</i> L	-	-	-	+	+
Fam. Acipenseridae.					
<i>Acipenser ruthenus</i> L	-	(+)	-	-	-

Legend: + frequent species, - absent species, (+)species with rare frequency

The economic interest is for the trout while the chub, the broad snout, the bream, the perch, the crucian carp have a little economic value and the gudgeon and the bleak are important species for the citizens' nutrition.

In terms of ecologic reproduction, the majority of species are thermophilic, with the laying down of eggs in spring-summer (the perch, the bream, the bleak, the crucian carp), one species (the trout) is cold water stenotherm with the laying down of eggs from late in

the autumn until early in the spring; five species are phytophil fish species (the perch, the bream, the crucian carp, the bleak) and four species are lithophilous (the trout, the chub, the broad snout, the gudgeon).

In terms of nutrition two species are phyto-zoo benthophagous (the crucian carp, other species); one is phyto-detritophagous (the broad snout), two are zoo- benthophagous (the bream, the gudgeon); one species is zoo-planktonphagous (the bleak); one facultative predatory (the perch); one species of typical predatory (the trout).

CONCLUSIONS

1. During the mentioned period of study were collected the following species: the bleak (*Alburnus alburnus L*); other species (*Scardinius erythrophthalmus L*); the bream (*Abramis brama L*); the gudgeon (*Gobio obtusirostris Val*); the barbel (*Barbus meridionalis L*); the crucian carp (*Carassius gibelio L*); the chub (*Leuscicus cephalus L*); the broad snout (*Cohondrostoma nasus L*); the perch (*Perca fluviatilis L*); the trout (native) (*Salmo trutta fario L*);
2. Is to be remarked the dominance of the crucian carp (57. 32%) which together with the perch (18%) detach themselves a lot from the other species.
3. In 2005 was noticed the presence of only 10 existent species compared to the 19 existent species in 1973 and 25 species at the beginning of the lake formation.
4. The economic interest is for the trout while the chub, the broad snout, the bream, the perch, the crucian carp have a little economic value and the gudgeon and the bleak are species without any economic value.

REZUMAT

Scopul acestui studiu a fost de a stabili actuala compoziție calitativă, cantitativă precum și starea ecologică a speciilor autohtone precum și a celor introduse de om în lacul Bicaz, care, se află într-o continuă schimbare caracterizată printr-o diminuare a numărului de specii.

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