

SPECIES COMPOSITION OF THE ICHTHYOFAUNA OF SOME TRIBUTARIES OF THE MARITZA RIVER

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Abstract

Study of fish fauna of the rivers Topolnitsa, Luda Yana, Stryama, Chepinska and Vucha all tributaries of the Maritza River was carried out. The research was conducted in the autumn of 2006 and 2007. The material was collected by electrofishing using unpuled direct current (DC). In the studied rivers the 11 sampling areas were marked and explored. During the investigation in these rivers 17 fish species belonging to 5 families were found. The family Cyprinidae was the most representative in the sample. The fish fauna composition was predominated by two reofilic species – *Barbus cyclolepis* and *Squalius orpheus*. Among the species found in this study there was three alien fishes for the local fish fauna composition were found – *Oncorhycus mykiss*, *Lepomis gibbosus* and *Pseudorazbora parva*. The present study identified four species endemic to Aegean watershed – *Gobio bulgaricus*, *Chondrostoma vardareense*, *Squalius orpheus* and *Vimba melanops*. The author was found also two species endemic to Balkan Peninsula – *Cobitis strumicae* and *Sabanejewia balcanica* and one species endemic to Maritza River basin – *B. cyclolepis*.

The estimated composition of the fish fauna in this study was composed of species characteristic mainly for the middle zone of the rivers. The present study showed some changes in the species composition of fish fauna have occurred in recent years. The species like *G. bulgaricus* which were prevalent before today are found in much smaller quantities. At the same time in the fish fauna composition the number of the species such as *Lepomis gibbosus*, *Pseudorazbora parva*, *Carassius gibelio* and *Perca fluviatilis* have increased. The author found some rarer species like *Rhodeus amarus* while the species that was common before as *Carassius carassius* was not established.

Key words: Maritza (Evros/Meriç) River basin, ichthyofauna, species composition.

Introduction

Among the inland rivers in Bulgaria Maritza River has the largest catchment area of up to 21,100 km² to the Bulgarian-Greek border (Tsatchev et al. 1977). The Maritza catchment area is entirely in the south of the main watershed of Bulgaria – Stara Planina Mountains. The ichthyofauna of Maritza River is different from the one

of Northern Bulgaria and includes some endemic species for Southern Bulgaria (Chichkoff 1935, Heckel 1837, Kottelat and Economidis 2006). The majority of the Maritza River runoff is formed by tributaries located in Sredna Gora Mountains as well as Rhodopes Mountains.

The first partial information on the species composition of the River Maritza's ichthyofauna was reported by Heck-

el in 1837. After examining material from the Maritza River Heckel listed 17 fish species belonging to 5 families (Table 3). Particularly valuable in this publication was the first description of the barbel from the Maritza River. Kovatcheff (1921) has published the results of a survey of the ichthyofauna of the Maritza River, conducted in the period 1914–1915, and reported 25 fish species belonging to 11 families, among which there was also a representative of the family Petromyzonidae. The next available data on ichthyofauna of the Maritza River and its tributaries fishfauna composition were reported by Drensky (1928, 1930, 1951) and Morov (1931). In 1935 Chichkoff published an overview of fish fauna of the Aegean watershed with particular attention to the ichthyofauna of Maritza River. The author mentioned the presence of 26 fish species for Maritza River from 9 families, including species living in fresh and marine water as *Acipenser sturio* (Linnaeus, 1758), *Proterorhinus marmoratus* (Pallas, 1814) and *Platichthys flesus* (Linnaeus, 1758).

A three year investigation on the fish fauna of the whole course of the Maritza River was carried out by Mihaylova (1965). The material for this study was collected by sweep-nets and fishing rods. The author explored 970 specimens of fish from the main stream of the Maritza River and from its tributaries, including rivers Toponitsa, Luda Jana and Chepinska. Mihaylova (1965) established 18 fishes belonging to 8 families. She has shown the proportion of each species in the sample (Table 3). The largest share in her sample had *B. cyclolepis*, followed by *Gobio bulgaricus*. As the number of individuals in the Mihaylova's (1965) sample *Sq. orpheus* ranked third. The

amount of captured *B. cyclolepis*, *G. bulgaricus* and *Sq. orpheus*, taken together, constituted over 50 % of the total catch cited in this study. In the sample from the Maritza River between towns Septemvry and Pazardzhik and from the Maritza's tributaries Toponitsa, Luda Jana and Chepinska Mihaylova (1965) established even predominance of *G. bulgaricus* in front of *B. cyclolepis* and *Sq. orpheus*. Since the author has explored all along the Maritza River in Bulgaria, in its data presented species typical of the lower area as *Esox lucius*, *Silurus glanis*, *Sander lucioperca* and *Tinca tinca*. She recorded also the presence of two non native species *Onc. mykiss* and *Gambusia holbrooki* in Maritza River. The author mentioned that *G. holbrooki* was introduced in the Maritza River near the town of Pazardzhik to combat mosquitoes. Mihaylova (1965) indicated that the species composition of the ichthyofauna of the Maritza River was significantly impoverished compared to the 30^s of the twentieth century. The author pointed out that there were no species in the catch: *Eudontomyzon* sp., *Acipenser sturio*, *Barbus barbus*, *Abramis brama*, *Sabanejewia balcanica* and *Platichthys flesus*, mentioned before that.

Dikov et al. (1994) published the results of a survey of fish stocks in inland rivers of Bulgaria. They reported data on the Arda River, a tributary of the lower course of the Maritza River. Authors calculated the average abundance and biomass of the four species – *G. bulgaricus*, *B. cyclolepis*, *Phoxinus phoxinus* and *Sq. orpheus* in the Arda River. Velcheva and Mehterov (2005). a study on the fish fauna of the Maritza River. They found 18 different species from 6 families, one of them non native.

Stefanov and Trichkova (2006) made an overview of the species composition of the fish fauna of the Rhodope Mountains. They cited the results of the previous studies on the ichthyofauna composition of some tributaries of the Maritza River. In this publication authors sowed also the results of there investigation on the fish fauna composition of some reservoirs in the Maritza River basin: Dospat, Beglica, Golyam Beglik, Toshkov Chark, Shiroka Polyana, Teshel, Vucha and Batak. They explored the fish fauna composition also in the upper and middle zone of the rivers: Dospat, Trigradska, Devinska and Vucha. Stefanov and Trichkova (2006) reported two imported species *Huho huho* and *Salmo salar* in the reservoirs: Dospat, Golyam Beglik and Batak. According to the authors in rivers and reservoirs in the basin of the Maritza River found a total of 19 fish species from the 7 families. One of this species was catadromus *Anguilla anguilla* and four of them were non native for the Maritza River basin – *Lepomis gibbosus*, *Onc. mykiss*, *H. huho* and *S. salar*.

Partial information of the species composition of the fishfauna of Maritza River were reported also by Zashev (1961), Maitland (1987), Marinov (1989), Karapetkova and Zivkov (1995), Zivkov and Dobrev (2001), Kottelat and Freyhof (2007).

Studied in the present researches rivers were under strong anthropogenic influence. In all those rivers was identified pollution from domestic sewage water and industrial water (Mihaylova 1965, Tsatchev et al. 1977). Also, many dams were built along the Maritza River. Our study area contained six dams – three on the watercourse of the Topolnitsa River and three on the Vucha River. In the upper area of many

of the tributaries of the Maritza River water abstractions are built. Such abstractions are built also on water courses of the rivers Luda Yana and Stryama.

Purpose and Objectives

The aim of this study was to investigate the current status of the fish fauna of the rivers Topolnitsa, Luda Yana, Stryama, Chepinska and Vucha from the middle part of the basin of the Maritza River.

For this task it was necessary to establish:

- species composition of fish fauna, including the presence of endemic species, introduced and invasive species in the studied rivers;
- percentage composition of fish fauna;
- most represented species in number.

Materials and Methods

The study area included five tributaries of Maritza River: Topolnitsa, Luda Yana and Stryama from the Sredna Gora Mountains as well as Yadenitsa, Chepinska and Vucha in the Rhodope Mountains (Figure 1). The study was focused on reofilic fish communities.

Topolnitsa River is a left tributary of the Maritza River with total length 154.8 km. Topolnitsa River is formed by the confluence of the stream of Shirine and Kriva, which sprigs from the peaks Bunaya and Bogdan, in Sredna Gora Mountains. The catchment area of Topolnitsa River is 1,789 km². There are three dams: Dushantsi, Zhekov Vir and Topolnitsa. Topolnica River flows into Maritza River west of the town of Pazardzhik.

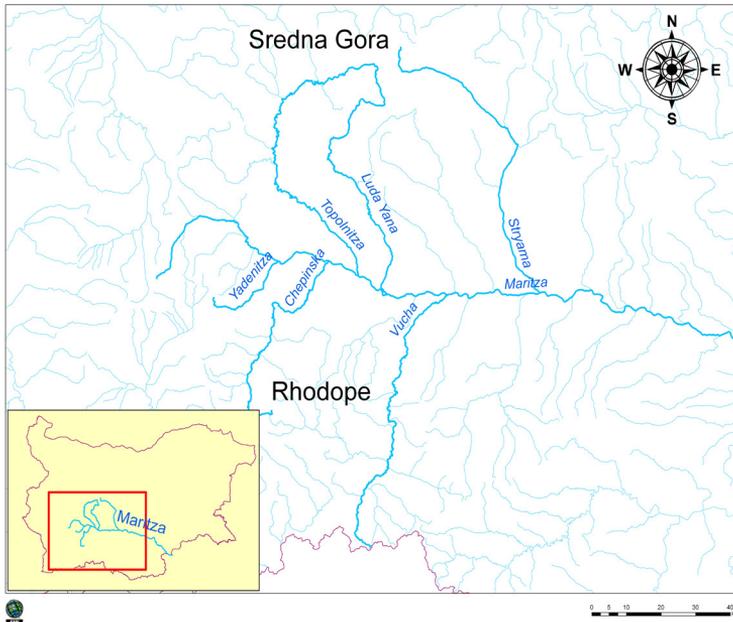


Fig. 1. Location of studied rivers: Maritza River; Topolnitsa River; Luda Jana River; Sryama River; Chepinska River; Vucha River, Arc Map 10.0 (ESRI).

The Luda Yana River springs from Bich Peak of Sredna Gora Mountains. It is also a left tributary of Maritza River. The length of Luda Yana River is 74 km and its catchment area is 685.3 km². Near the village Sinitovo it flows into Maritza River.

Stryama River springs east of peak Vezhen in the Middle Stara Planina Mountains and flows between Mountains: Stara Planina, Sredna Gora and Sarnena Gora. Stryama is a left tributary of the Maritza River. Its length is 110 km with catchment area of 1,789 km². The river flows into Maritza River near the village of Manole.

Yadenitsa River is a right tributary of the Maritza River originated from the saddle of Yundola. The River runs through the deep

carved valley and forming the boundary between the mountains of Rila and Rhodopes. Its length is 26 km and its catchment area 137.9 km². Near the town of Belovo the Yadenitsa River flows into Maritza River.

Chepinska River is a tributary of Maritza River, which flows from peak Mala Syutkya in Rhodope Mountains.

The length of

this river is 83 km. Its catchment area is 899.6 km². Near the village Zlokuchane Chepinska River flows into Maritza River.

Vucha River is a tributary of Maritza River springs from Rhodopes Mountains. The river originates from stream Buynovska. Vucha River is 111.5 km long. Its catchment area is 1,645 km². Vucha River flows into Maritza River west of the village of Kadievo. The Vucha River water quantity is strongly depends on stunts of Dospat-Teshel-Devin-Vucha.

The study material was collected by electrofishing. The electrofishing was conducted with unpuled direct current (DC). We used the backpack electrofisher SAMUS 725G – (Samus special electron-

ics, Poland), powered by a 12 V accumulator battery with 75 Ah capacity. The electrofisher converter provides DC impulses with frequency ranged between 5 and 100 Hz, duration 0.03–3 ms and maximum power of 650 W. The electrofisher is suitable for water resistance from 25 to 1000 Ω . The amperage in load condition is from 5 to 65 A. The collection of the material was made most commonly using operation U1, where the Output Voltage was 640 V, the used Output Frequency was of 50 Hz and Output Power reached to 200 W.

Fish sampling was undertaken in the autumn of the 2006 and 2007. The fish were collected from 11 sampling areas (Table 1). From every sampling area more than 100 individuals were caught. The protected fish species were returned alive back into the water. The rest of the material was used for the author's investigations, not showed in the present work.

Table 1. Sampling areas in rivers of Topolnitsa, Luda Yana, Stryama, Chepinska and Vucha.

No	Date	River	N	E	Altitude	Location
1	29.10.2006	Topolnitsa	42°12'25,24"	24°17'44,77"	214 m	Near the bridge on the road Pzardzhik-Septemvry
2	04.11.2006	Topolnitsa	42°21'34,87"	24°05'44,22"	288 m	Near the village of Lesichevo
3	05.11.2006	Topolnitsa	42°24'39,77"	23°59'55,44"	346 m	Near the village of Muhovo below the dam of Topolnitsa
1	05.11.2006	Topolnitsa	42°12'25,24"	24°17'44,77"	214 m	Near the bridge on the road Pzardzhik-Septemvry
4	10.11.2006	Luda Yana	42°11'39,43"	24°23'55,35"	209 m	Near the bridge on the road Pzardzhik-Plovdiv
5	10.11.2006	Luda Yana	42°16'24,63"	24°23'25,95"	235 m	Near the village of Chernogorovo next to the road bridge
6	16.11.2006	Stryama	42°15'07,29"	24°50'21,05"	174 m	Near the bridge of the road Plovdiv-Rakovski
7	17.11.2006	Stryama	42°33'39,11"	24°47'45,81"	302 m	Near the town of Banya next to the fish farm
8	27.11.2006	Chepinska	42°11'09,67"	24°09'45,07"	240 m	Near the bridge of the road Belovo-Lozen
8	04.10.2007	Chepinska	42°11'09,67"	24°09'45,07"	240 m	Near the bridge on the road Belovo-Lozen
9	04.10.2007	Chepinska	42°07'42,78"	24°07'21,71"	417 m	Near the spa baths of the village of Varvara
8	05.10.2007	Chepinska	42°11'09,67"	24°09'45,07"	240 m	Near the bridge on the road Belovo-Lozen
10	12.10.2007	Vucha	42°06'59,28"	24°33'06,89"	182 m	Near the village of Yoakim Gruevo
11	12.10.2007	Vucha	42°01'25,87"	24°28'22,49"	209 m	Near the town of Krichim
4	13.10.2007	Luda Yana	42°11'39,43"	24°23'55,35"	209 m	Near the bridge on the road Pzardzhik-Plovdiv

The identification of the species was made according to Kottelat and Freyhof (2007). The classification of families was made according to Kottelat and Freyhof (2007). The percentage composition of fish species in the studied rivers (Table 2) was calculated on the basis of total material, collected in the period 2006–2007.

Results

From the studied rivers 3880 fish were caught in the period 2006–2007. 17 species belonging to 5 families were recorded (Table 3).

Table 2. Present data of the fish fauna composition of rivers Topolnitsa, Luda Yana, Stryama, Chepinska and Vucha.

No	Family and species	Fishes found in present study	Fishes described in the literature	First reference for the Maritza River	Percentage composition of fish species	
					Present study, 2006–2007	Michaylova, 1965
	Fam. Petromyzonidae					
1	<i>Eudontomyzon</i> sp.	–	+	Kovatcheff, 1921	–	–
	Fam. Acipenseridae					
2	<i>Acipenser sturio</i>	–	+	Kovatcheff, 1921	–	–
	Fam. Anguillidae					
3	<i>Anguilla anguilla</i>	–	+	Kovatcheff, 1921	–	–
	Fam. Cyprinidae					
4	<i>Rhodeus amarus</i>	+	+	Heckel, 1837	0.00	6.91
5	<i>Gobio bulgaricus</i>	+	+	Drensky, 1930	1.19	18.24
6	<i>Pseudorasbora parva</i>	+	+	Karapetkova & Živkov, 1995	0.75	–
7	<i>Barbus barbus</i>	–	+	Kovatcheff, 1921	–	–
8	<i>Barbus cyclolepis</i>	+	+	Heckel, 1837	52.84	22.37
9	<i>Barbus petenyi</i>	–	+	Kovatcheff, 1921	–	–
10	<i>Carassius carassius</i>	–	+	Heckel, 1837	–	–
11	<i>Carassius gibelio</i>	+	+	Drensky, 1930	0.72	–
12	<i>Cyprinus carpio</i>	–	+	Heckel, 1837	–	–
13	<i>Abramis brama</i>	–	+	Morov, 1931	–	–
14	<i>Alburnus alburnus</i>	+	+	Kovatcheff, 1921	1.88	10.52
15	<i>Aspius aspius</i>	–	+	Kovatcheff, 1921	–	–
16	<i>Chondrostoma vardarense</i>	+	+	Drensky, 1930	0.77	2.47
17	<i>Phoxinus phoxinus</i>	+	+	Kovatcheff, 1921	0.21	2.16
18	<i>Rutilus rutilus</i>	+	+	Heckel, 1837	2.84	0.52
19	<i>Scardinius erythrophthalmus</i>	–	+	Heckel, 1837	–	1.95
20	<i>Squalius orpheus</i>	+	+	Kovatcheff, 1921	34.90	16.70
21	<i>Vimba melanops</i>	+	+	Heckel, 1837	0.30	3.60
22	<i>Tinca tinca</i>	–	+	Kovatcheff, 1921	–	0.10
	Fam. Cobitidae					
23	<i>Cobitis strumicae</i>	+	+	Drensky, 1930	1.75	4.54
24	<i>Sabanejewia balcanica</i>	+	+	Drensky, 1930	0.03	–
	Fam. Siluridae					
25	<i>Silurus glanis</i>	–	+	Chichkoff, 1935	–	0.62
	Fam. Esocidae					
26	<i>Esox lucius</i>	–	+	Heckel, 1837	–	1.24
	Fam. Salmonidae					
27	<i>Oncorhynchus mykiss</i>	+	+	Mihaylova, 1965	0.05	0.10
28	<i>Salmo</i> sp.	+	+	Kovatcheff, 1921	0.23	–
	Fam. Poeciliidae					
29	<i>Gambusia holbrooki</i>	–	+	Mihaylova, 1965	–	7.22
	Fam. Centrarchidae					
30	<i>Lepomis gibbosus</i>	+	+	Karapetkova & Živkov, 1995	0.82	–
	Fam. Percidae					
31	<i>Perca fluviatilis</i>	+	+	Heckel, 1837	0.72	–
32	<i>Sander lucioperca</i>	–	+	Kovatcheff, 1921	–	0.21
	Fam. Cobiidae					
33	<i>Proterorhinus marmoratus</i>	–	+	Kovatcheff, 1921	–	0.52
	Fam. Pleuronectidae					
34	<i>Platichthys flesus</i>	–	+	Kovatcheff, 1921	–	–
	Total				100.00	100.00

Table 3. Distribution of fish species in rivers of Topolnitsa, Luda Yana, Stryama, Chepinska and Vucha during the period of 2006–2007.

No	Species	Presence/Absence				
		T	LY	Str	Ch	Vch
Fam. Cyprinidae						
1	<i>Rhodeus amarus</i> Bloch, 1782	–	–	–	+	–
2	<i>Gobio bulgaricus</i> Drensky, 1926	–	+	+	+	+
3	<i>Pseudorasbora parva</i> Temminck & Schlegel, 1846	+	+	–	–	–
4	<i>Barbus cyclolepis</i> Heckel, 1837	+	+	+	+	+
5	<i>Carassius gibelio</i> Bloch, 1782	+	+	–	+	–
6	<i>Alburnus alburnus</i> Linnaeus, 1758	+	+	+	+	–
7	<i>Chondrostoma vardarense</i> Karaman, 1928	+	–	+	+	–
8	<i>Phoxinus phoxinus</i> Linnaeus, 1758	+	–	+	–	–
9	<i>Rutilus rutilus</i> Linnaeus, 1758	+	+	+	+	–
10	<i>Squalius orpheus</i> Kottelat & Economidis, 2006	+	+	+	+	+
11	<i>Vimba melanops</i> Heckel, 1837	+	–	+	+	–
Fam. Cobitidae						
12	<i>Cobitis strumicae</i> Karaman, 1955	+	+	+	+	+
13	<i>Sabanejewia balcanica</i> Karaman, 1922	+	–	+	–	–
Fam. Salmonidae						
14	<i>Oncorhynchus mykiss</i> Walbalm, 1792	–	–	+	+	–
15	<i>Salmo</i> sp.	+	+	+	+	+
Fam. Centrarchidae						
16	<i>Lepomis gibbosus</i> Linnaeus, 1758	+	+	+	+	–
Fam. Percidae						
17	<i>Perca fluviatilis</i> Linnaeus, 1758	–	+	+	+	+

Legend: + = presence, – = absence, T = Topolnitsa; LY = Luda Yana; St = Stryama; Ch = Chepinska; Vch = Vucha.

The most representative family in the studied rivers was the cyprinid family, including 11 species. The remaining families were represented with only one or two species of fish.

Pursuant to classification of Kottelat and Freyhof (2007) four of the identified species – *G. bulgaricus*, *Chondrostoma vardarense*, *Sq. orpheus* and *Vimba melanops* are endemic to Aegean watershed, two of them – *Cobitis strumicae* and *Sabanejewia balcanica* are endemic to Balkan peninsula and one species – *B. cyclolepis* is endemic to Maritza River basin.

In the investigated rivers one non native species – *On. mykiss* and two invasive species – *Ps. parva* and *L. gibbosus* were found.

B. cyclolepis predominated with 54.8 % of the sample, followed by *Sq. orpheus* with 34.9 % (Table 2), both of them are native and reofilic.

Discussion

This study found that the species composition of fish fauna of the studied tributer-

ies of the Maritza River – Topolnitsa, Luda Yana, Stryama, Chepinska and Vucha, was predominated by *B. cyclolepis* and *Sq. orpheus* (Table 3), two species typical of middle zone.

Reconciliation of the species composition of the catch in this study with other authors (Michaylova 1965, Dikov et al. 1994) showed that the *B. cyclolepis* was among the dominant species in fish community all along the Maritza River (Table 3). This study and the data of Michaylova (1965), showed that fish community from Maritza River basin, were dominated by the fishes of the family Cyprinidae, which were most numerous.

In the sample area over 400 m altitude in the gorge of the river Chepinska, where the rate of water flow is greater and where the riverbed is covered with stones, the ichthyofauna was represented almost exclusively by *B. cyclolepis*. At the bottom of the river, near the confluence in to the Maritza River, where there is an accumulation of sand and organic, the composition of fish fauna was very diverse and was dominated by *Sq. orpheus*.

The present study showed that in rivers Topolnitsa, Luda Yana, Stryama, Chepinska and Vucha the number of *G. bulgaricus* decreased greatly. According to Mihalova (1965) *G. bulgaricus* was one of the most numerous species in the Maritza River basin. In the present study this species accounted for only 1 % of the fish composition. *G. bulgaricus* was even absent in the Topolnitsa River (Table 3), one of the most polluted river in the Maritza River basin (Tsatchev et al. 1977). As the species of the genus *Gobio* are sensitive to water pollution was very likely that it was the main cause of reducing the number of *G. bulgaricus* in studied rivers over the past decades.

Rhodeus amarus was recorded only in Chepinska River (Table 3). The habitat is characterized by almost no water current, a sand-gravel bottom and availability of necessary mussels of the genus *Unio*.

The author established *Carassius gibelio* in the tree of five studied rivers (Table 3). However will merely be noted that *C. gibelio* was found only near the confluence of the tributaries to the main course of the Maritza River. In previous investigation *C. gibelio* was found in the Maritza River only by Velcheva and Mehterov (2005). Stefanov and Trichkova (2006) reported the species for the reservoirs: Dospat, Beglica, Golyam Beglik, Toshkov Chark, Teshel, Shiroka Polyana and Vucha, situated in the watershed of the Maritza River.

Carassius carassius mentioned by some authors before (Chichkoff 1935, Velcheva and Mehterov 2005) (Table 2) now was not detected in this study confirming the claim (Zivkov and Dobrev 2001) that the species occurs much less frequently in recent years.

It should be noted that two reofilic species – *Ch. vardarensis* and *V. melanops*, found in large quantities in the middle area of the rivers Mesta and Struma (Apostolou 2005, Apostolou et al. 2010) in most of surveyed tributaries of Maritza River were presented in very low quantity (Table 3). Both fish species were caught only in the lower area of the tributaries just before their infusion into Maritza River. The small number of both species was determined by hydrological particularity of the studied water-courses: the speed of water flow, shallow, covered with rocks and sand riverbed, lack of submerged vegetation in the water. On the other hand these species were absent in the Luda Yana and Vucha, whose flow rate is very low and variable in summer.

Of all studied rivers Vucha is characterized by the poorest species composition of the fish fauna. Frequent changes in the flow of the river Vucha, resulting from the operation of stunts of Dospat-Vucha and Devin-Teshel probably had an effect and its fish fauna.

The cited data and the present data showed that a widespread species in the rivers Struma and Mesta (Apostolou et al. 2010) *Alburnoides bipunctatus* was not found in the rivers of the watershed of the Maritza River.

According to Karapetkova and Zivkov (1995) and Stefanov (2007) *Onc. mykiss* have been introduced in Bulgaria in 1934. In the rivers of Stryama and Chepinska. *On. mykiss* were caught in areas near fishfarms, where the fish most likely escaped from (Table 3).

As per to Golemanski and Bozkov (2003) *Ps. parva* was recorded for the first time in Bulgaria in 1977 in the fish farm near the village of Mechka, Russe region, while *L. gibbosus* was found for the first in Bulgaria in the marsh of the town of Svishtov in 1920. Both species have a proven negative effect on local fish fauna (Karapetkova and Zivkov 1995; Zivkov and Dobrev 2001). The two species was first reported in the research of Velcheva and Mehterov (2005) (Table 2). In the present study *L. gibbosus* and *Ps. parva* were found in the lower part of the tributaries before inflowing into Maritza River. *L. gibbosus* was present in all studied rivers with the exception of Vucha (Table 3). *L. gibbosus* was also reported by Stefanov and Trichkova (2006). Probably the two species *L. gibbosus* and *Ps. parva* have been in widespread in the studied rivers of the Maritza River basin in recent decades. *L. gibbosus* however, had a wider distribution.

C. strumicae was first reported by Heckel (1937) quent and almost all cited

authors (Table 2). Obviously, the species was widespread throughout the basin of the Maritza River. In the present study a large number of *C. strumicae* was established in all studied rivers whereas *S. balcanica* was more rarely found. The author caught a few specimens of *S. balcanica* in the rivers Stryama and Topolnitsa (Table 3). In the rivers of the watershed of Rhodope Mountains *S. balcanica* was not established. Kottelat and Freyhof (2007) considered that *C. strumicae* usually associated with fine substrate, while *S. balcanica* prefers gravel bottom, this is there are more places with sandy and muddy bottom in the studied rivers. In the Maritza River *S. balcanica* was first reported by Drensky (1930) and later by Chichkoff (1935) (Table 2). Absence of *S. balcanica* in the later study of Mihailova (1965) perhaps was due to the way of collecting material for this study (sweep-nets and fishing rods), the tendency of species to be buried in the substrate (Kottelat and Freyhof 2007) and at its lower number (Table 2).

In the present study *Perca fluviatilis* was established in all most of studied rivers (Table 3) near the infusion in the Maritza River. It should be noted that in many of the earlier studies this species have not been registered (Kovatcheff 1921, Michaylova 1965, Velcheva and Mehterov 2005). It was likely that the distribution of *P. fluviatilis* have not been very widely as it is now.

The estimated composition of the fish fauna in this study was predominated of species characteristic mainly for the middle zone of the rivers. In the current study were not found species such as the *Acipenser sturio*, *Silurus glanis*, *Sander lucioperca*, *Tinca tinca*, *Esox lucius*, *Aspius aspius*, characteristic of the lower

zone and reported by other authors for the Maritsa River.

Conclusions

The cyprinid family was the most representative in the species composition in rivers Topolnitsa, Luda Yana, Stryama, Chepinska and Vucha fishfauna.

The ichthyofauna of the rivers Topolnitsa, Luda Yana, Stryama, Chepinska and Vucha is predominated by two species: *B. cyclolepis* and *S. orpheus*.

Invasive species *L. gibbosus* was widespread in the rivers Topolnitsa, Luda Yana, Stryama and Chepinska.

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