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CHARACTERIZATION OF THE TAXONOMIC DYNAMICS OF BENTHIC FAUNA FROM THE ROMANIAN SECTOR OF THE DANUBE, BETWEEN 767-398 KM

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Abstract. The taxonomical structure of benthic invertebrates and the inventory of insect species are presented, obtained from 92 samples collected from 29 stations placed in the Romanian sector of the Danube, between 767-398 km. At the same time, a comparative taxonomical analysis of the structure established in 1967 and 2004 is made. In this context, 24 new localities for the range of 51 species were mentioned, these being the most southern mentions from Romania. *Gomphus flavipes* (Charpentier, 1825) - a dragonfly species protected at European level - is reported from the Danube - km 514 and Slobozia Pond.

Résumé. On présente la structure taxonomique des invertébrés benthoniques de même que la liste des espèces des insectes obtenu des 92 prélèvements collectés dans 29 stations situés au long du secteur roumain du Danube, entre le km 767 et 398. On fait aussi une comparaison entre la structure taxonomique identifiée en 1967 et celle-la de 2004. À cette occasion, on a établi 24 localités nouvelles pour les aires de 51 espèces, probablement les plus sudiques mentionnés pour la Roumanie. Une espèce de libellule protégée au niveau européen, *Gomphus flavipes* (Charpentier, 1825) est citée au km 514 et l'étang Slobozia.

Key words: Danube River, Romanian sector, 767-398 km, benthic invertebrates, insects.

SHORT HISTORY

The benthic fauna of the Romanian sector of the Danube has been studied by a series of renown researchers, many of the data obtained being published in well-known papers, among which: Băcescu (1937, 1948), Motaş & Băcescu (1938), Grossu (1993), Buşniţă, Enăceanu, Brezeanu (1961), Enăceanu & Brezeanu (1964), Brezeanu & Popescu-Marinescu (1965), Cure (1963), Popescu-Marinescu & Elian-Tălău (1972), Popescu-Marinescu et al. (1980), Popescu-Marinescu (1977, 1992), Negrea & Popescu-Marinescu (1992), Tatole (1983), Tatole et al. (1994). A special attention must be paid to the monographic paper “*Limnologia Sectorului Romînesc al Dunării*” („Limnology of the Romanian Sector of the Danube”) published in 1967 (A. C. Banu, ed.), and realized by a team of specialists from the Romanian Academy Hydrology Commission.

The present paper analyzes the data regarding the structure of benthic fauna, obtained during 2004 from sampling stations placed in the Romanian sector of the Danube, between 767-398 km.

MATERIAL AND METHOD

The taxonomic investigation of benthic invertebrates from the mentioned areas has been done during 4 field trips, 29 stations for sample collecting were established (Fig. 1).

Two of the field trips (26th – 28th of April and 7th – 16th of June respectively) were made exclusively in the Cama-Dinu sector (between km 510 and 482) and

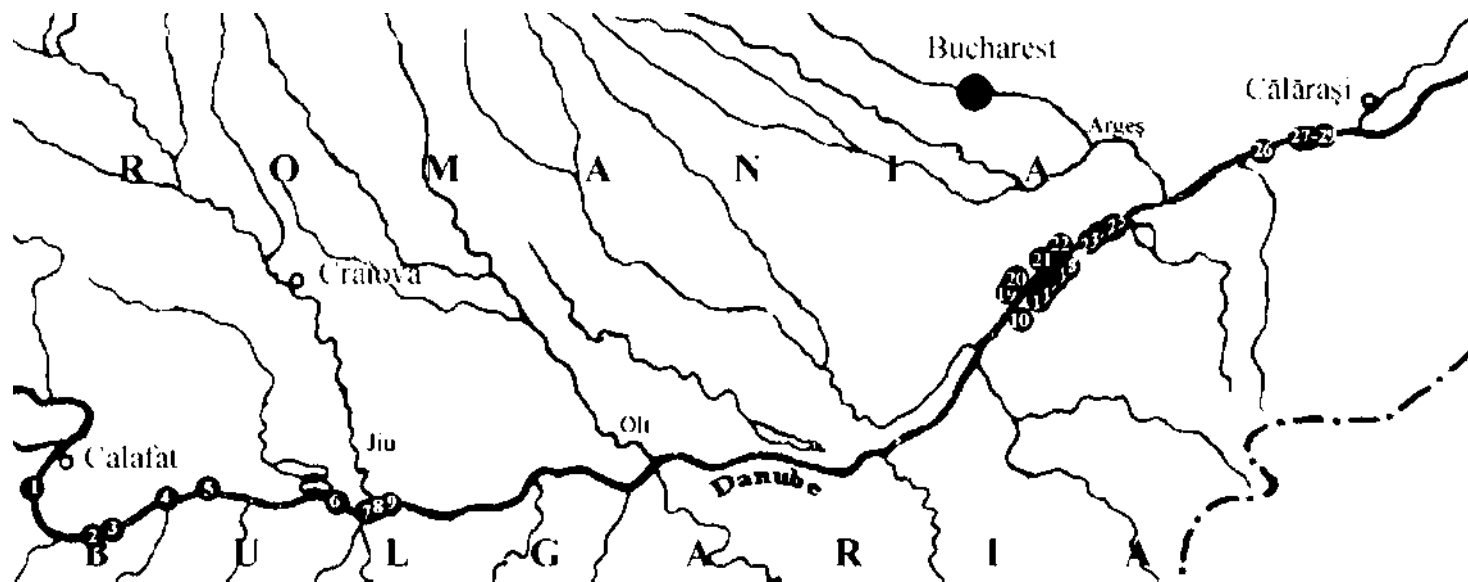


Fig. 1 – Location of sampling stations in the Romanian sector of the Danube, between 767-398 km.

another two targeted the areas upstream Cama-Dinu (15th – 19th of May), and downstream of Cama-Dinu sector (21st – 24th of June 2004).

So, the entire activity was focused on the following stations of the Danube River (see fig. 1):

1 – Acalia Islet; 2 – Pietriș Islet; 3 – Nebuna Islet; 4 – Vana Islet; 5 – Gitanului Islet; 6 – Copănița Islet; 7 – Upstream the mouth of Jiu River; 8 – Downstream the mouth of Jiu River; 9 – Cărăbulea Islet; 10 – Păsărica Islet; 11 – Danube km 514; 12 – Danube km 512; 13 – Cama Islet km 510; 14 – Cama Islet km 509; 15 – Dinu Islet km 508; 16 – Dinu Islet km 507; 17 – Danube km 502; 18 – Slobozia Channel; 19 – Șaica Pond; 20 – Pump Station Mahâru; 21 – Giurgiu Chemical Plant Channel; 22 – Slobozia Pond; 23 – Mocanu Islet; 24 – Penciu Forest Channel; 25 – Gostinu Channel; 26 – Albina Islet; 27 – Upstream the mouth of Mostiștea Channel; 28 – Mostiștea Channel; 29 – Downstream the mouth of Mostiștea Channel.

From the 29 established working stations, 92 samples of aquatic biologic material were collected.

Samples were taken using a Van Veen type bodengreifer, with cup's aperture of 0.600 m². In shallow water biotopes a hydrobiological net (Haveneau type), with 0.500 m² surface, was used.

The samples were sorted in the laboratory, and for each samples and station the relative abundance of invertebrate groups was calculated. The data for all stations are presented in the plates.

RESULTS AND DISCUSSIONS

Data regarding the present configuration of benthic fauna from the Romanian sector of the Danube, between 767 - 398 km.

In figure 2, the values of the relative abundances of invertebrate groups collected in sector placed between 767 – 685 km of Danube River are presented. The highest diversity was recorded in Copănița (696-691 km) – 8 groups, followed by Acalia and Gitanului with 7 groups, Gura Jiului with 6 groups, Vâna and Cărăbulea with 5 groups, and Nebuna with 3 groups. The oligochaets and chironomids are constantly dominant and, sometimes, the mollusks.

This sector, generically named Cama-Dinu, between 518 – 495 km, is divided in two ecosystem types: the Danube itself (Fig. 3) and the adjacent ponds and channels (Fig. 4).

From the data regarding the Danube, one can observe that the richest fauna was found in Danube – km 514 (12 groups), followed by Danube – km 512 with 10 groups, Cama with 9 groups, Danube – km 502 with 8 groups and Păsărica and Dinu with 7 groups each. The poorest fauna was encountered in Mocanu Islet – 4 groups. The dominant faunistic groups are the oligochaets and/or chironomids in all the stations, these being also the groups with the highest ecological plasticity in freshwater ecosystems.

All the groups are poorly represented both qualitatively (number of species) and quantitatively (number of individuals).

Among the stations from the adjacent ponds and channels, the richest fauna was recorded in Șaica Pond – 11 groups, followed by Mahâru Pump Station – 9 groups, Giurgiu Chemical Plant Channel – 8 groups and Slobozia Fish Pond with 7 groups. In Șaica Pond the ostracods are dominant, in Mahâru Pump Station and Giurgiu Chemical Plant Channel, the oligochaets, and in Slobozia Fish Pond, the chironomids.

In figure 5, the data obtained by processing the biological material collected from the stations downstream Cama-Dinu, between 482 – 398 km, are presented.

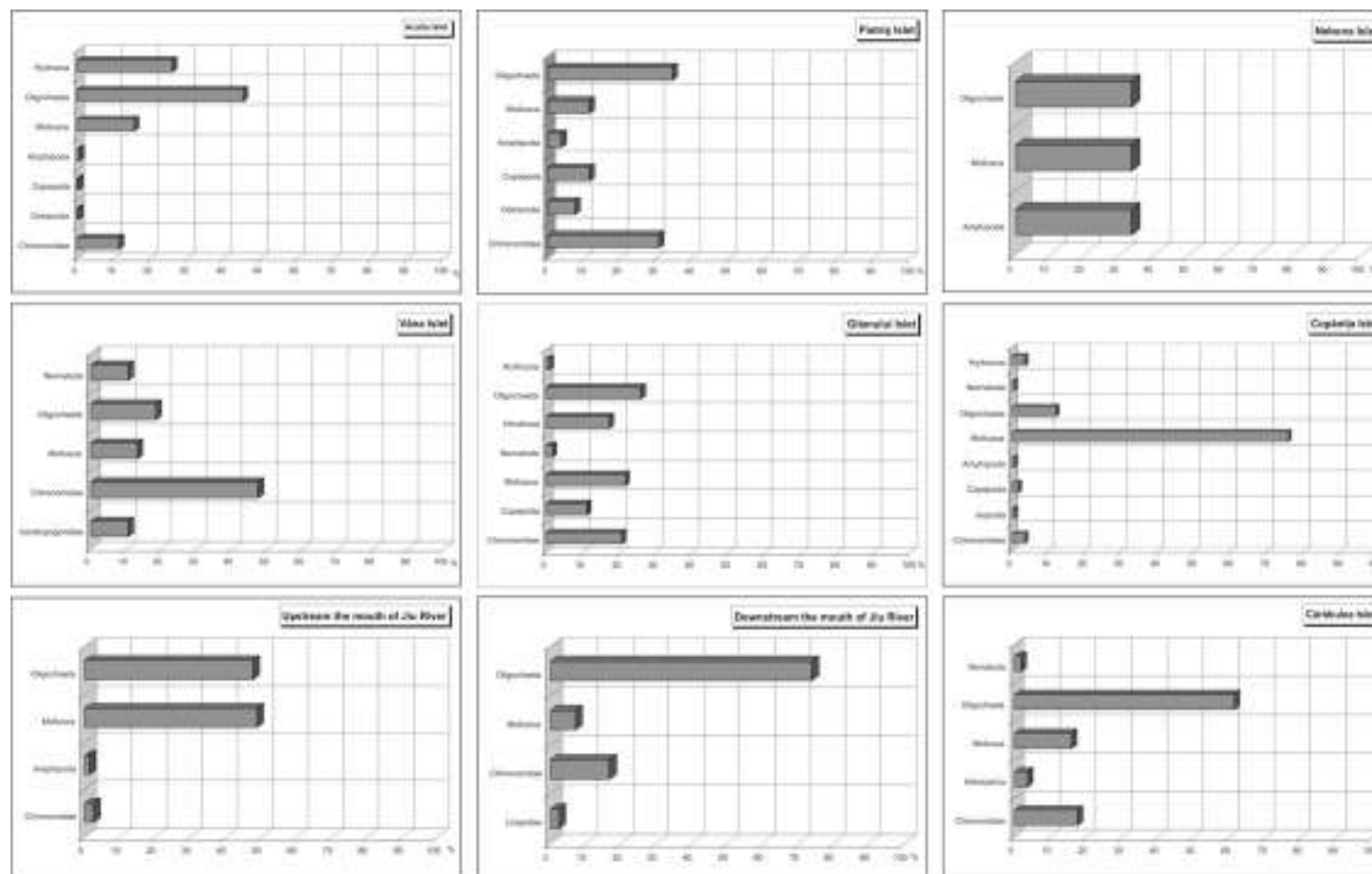


Fig. 2 – Relative abundances of invertebrate groups collected in the sector placed between 767 – 685 km of the Danube River.

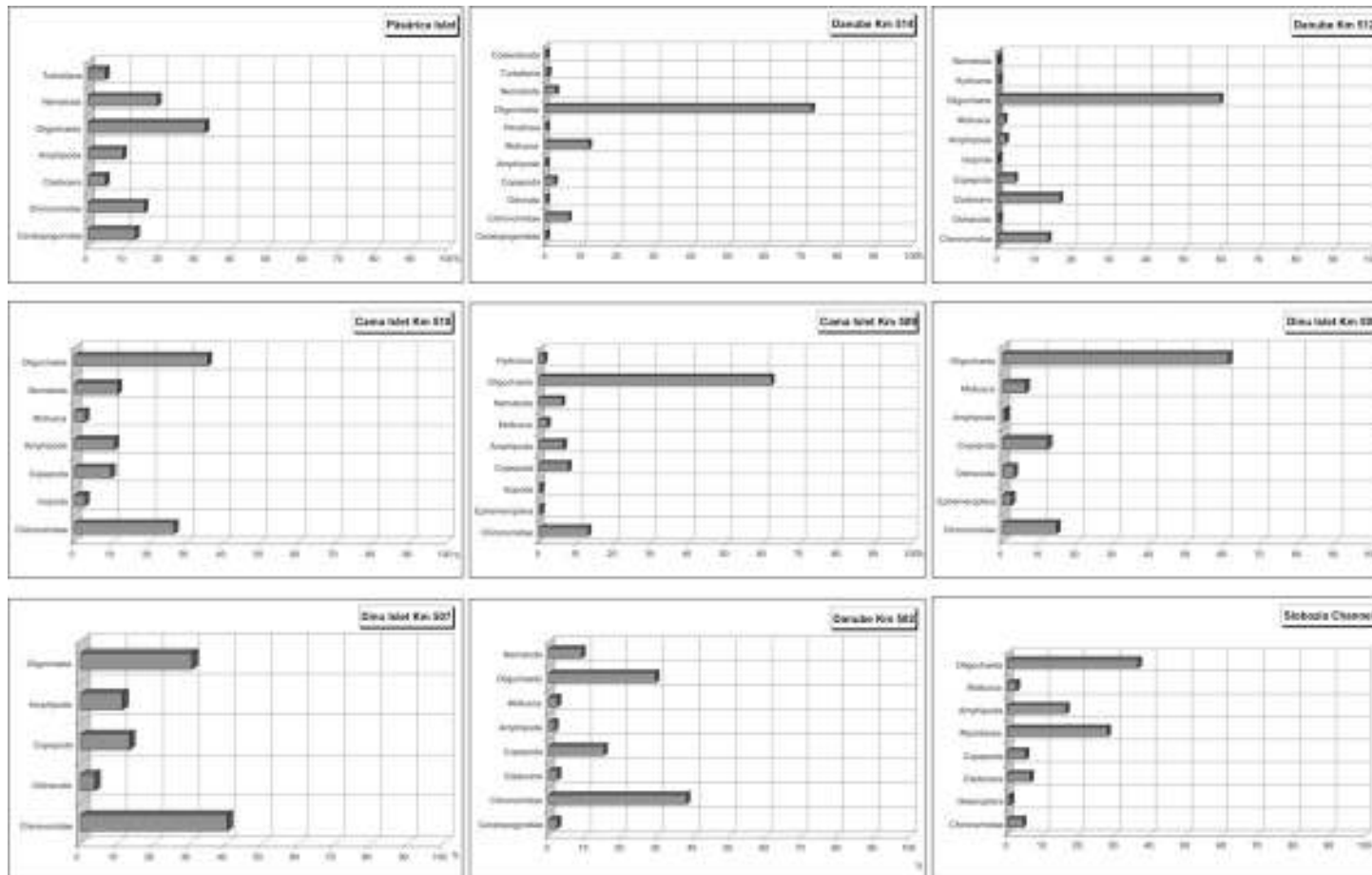


Fig. 3 – Relative abundances of invertebrate groups collected in the sector placed between 518 – 495 km of the Danube River.

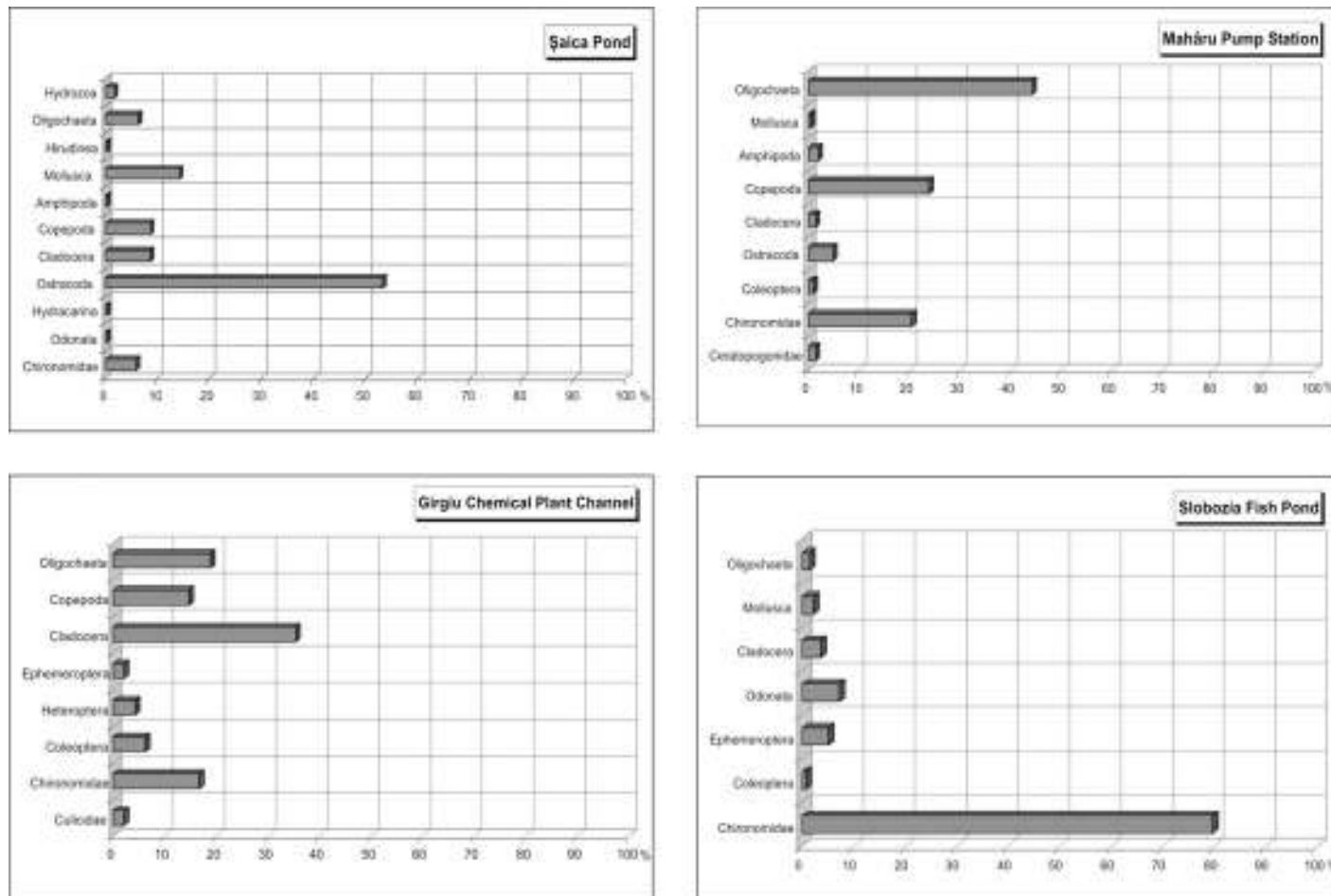


Fig. 4 – Relative abundances of invertebrate groups collected from four ponds and channels in Cama-Dinu area.

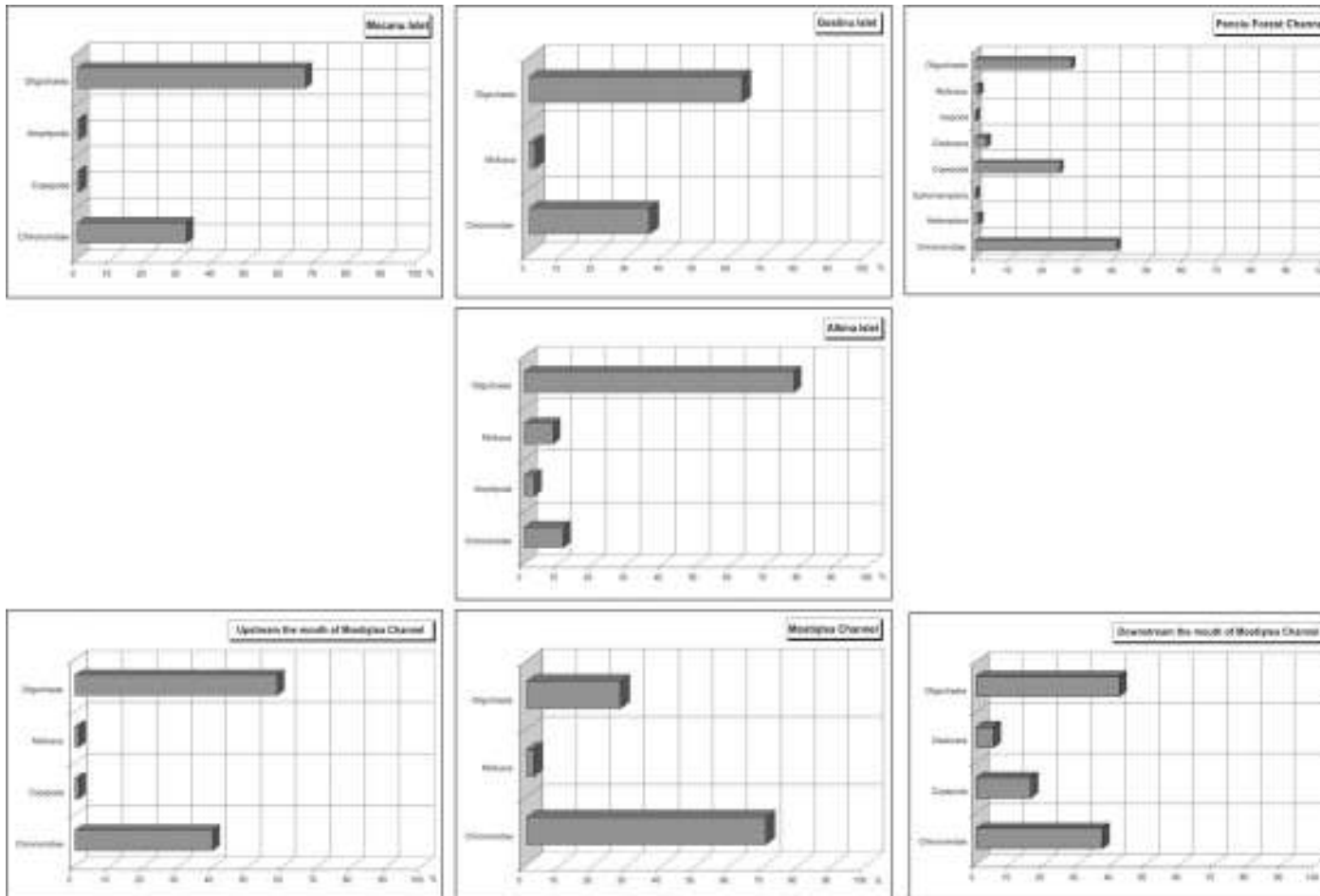


Fig. 5 – Relative abundances of invertebrate groups collected in the area, between 482 – 398 km, of the Danube River.

The highest diversity was recorded in Penciu Forest Channel – 8 groups, followed by Mocanu, Albina, upstream the Mouth of Mostiștea and downstream the Mouth of Mostiștea with 4 groups, and Gostinu, Mostiștea Channel with 3 groups. The oligocahets and chironomids are constantly dominant and, sometimes, the copepods.

The aquatic insects represented by heteropterans, dragonflies, mayflies, beetles, midges and mosquitoes were identified at species level (Tab. 1). Excepting chironomids, all the other insects are very poorly represented.

Table 1

List of insect taxa identified in Romanian sector of Danube River, between 767-398 km, in 2004.

Taxa	Station	Date of Collecting	GPS Data	No. ex.
HETEROPTERA				
Corixidae <i>Corixa</i> sp.	Slobozia Channel	10.06.2004	frontier guard cab.	1
Naucoridae <i>Naucoris</i> sp.	Slobozia Channel	10.06.2004	frontier guard cab.	1
Pleidae <i>Plea minutissima</i> Leach, 1817	Penciu Forest Channel	22.06.2004	004	1
ODONATA				
Zygoptera Agrionidae <i>Agrion pulchellum</i> Van der Linden, 1825	Danube - km 514	7.06.2004	010	1
Lestidae <i>Lestes dryas</i> Kirby, 1890	Dinu Islet - km 508	28.04.2004	015	1
Anisoptera Aeschnidae <i>Anax imperator</i> Leach, 1815	Slobozia Pond	10.06.2004	001	3
Gomphidae <i>Gomphus flavipes</i> (Charpentier, 1825)	Danube - km 514	28.04.2004	010	1
	Danube - km 514	07.07.2004	010	2
	Slobozia Pond	10.06.2004	001	2
Libelulidae <i>Libellula depressa</i> Linnaeus, 1758	Slobozia Pond	10.06.2004	001	5
EPHEMEROPTERA				
Baetidae <i>Baetis rhodani</i> (Pictet, 1843-45)	Canal near Giurgiu Chemical Plant Channel in Forest Penciu	10.06.2004	-	1
		22.06.2004	004	1
Caenidae <i>Caenis horraria</i> (Linnaeus, 1758)	Danube - km 509	28.04.2004	014	1
	Danube - km 508	7.07.2004	015	2
Oligoneuriidae <i>Oligoneuriella rhenana</i> (Imhoff, 1852)	Slobozia Pond	10.07.2004	001	7
COLEOPTERA				
Dytiscidae <i>Ilybius</i> sp.	Canal near Giurgiu Chemical Plant	10.07.2004	-	3
<i>Ilybius</i> sp.	Slobozia Pond	10.07.2004	001	1
Haliplidae <i>Pelodytes caesus</i> (Duftschmid, 1805)	Mahâru Pump Station	27.04.2004	-	2

Table 1 (continued)

Taxa	Station	Date of Collecting	GPS Data	No. ex.
DIPTERA Culicidae <i>Aedes</i> sp.	Șaica Pond	26.04.2004	002 - 006	2
Empididae <i>Hemerodromia</i> sp.	Mahâru Pump Station	27.04.2004	-	1
CHIRONOMIDAE Tanypodinae <i>Ablabesmyia monilis</i> (Linnaeus, 1758)	Channel in Penciu Forest	22.06.2004	004	11
	Gostinu Channel	22.06.2004		4
	Danube - upstream Mostiștea	23.06.2004	003	5
	Mostiștea Channel	23.06.2004	002	4
<i>Procladius choreus</i> (Meigen, 1804)	Slobozia Pond (fish farm)	10.06.2004	001	12
	Channel in Penciu Forest	22.06.2004	004	19
	Gostinu Channel	22.06.2004		21
	Danube - upstream Mostiștea	23.06.2004	003	7
<i>Tanypus punctpennis</i> Meigen, 1818	Danube - Dinu Islet	28.04.2002	015	5
	Danube - Cama Islet	28.04.2002	012	4
	Danube - Pietriș Islet	16.05.2004	007	3
	Danube - km 502	07.06.2004	017	6
	Danube - Slobozia Channel	10.06.2004	frontier guard cab.	2
	Channel in Forest Penciu	22.06.2004	004	7
	Gostinu Channel	22.06.2004		14
	Mostiștea Channel	23.06.2004	002	6
<i>Tanypus vilipennis</i> (Kieffer, 1918)	Danube - Pietriș Islet	16.05.2004	007	2
	Danube - Gitanului Islet	17.05.2004	016	2
	Danube - Cărăbulea Islet	19.05.2004	027	3
<i>Thienemannimyia lentiginosa</i> (Fries, 1823)	Mostiștea Channel	23.06.2004	002	8
<i>Zavrelimyia melanura</i> (Meigen, 1804)	Danube - Dinu Islet	28.04.2004	014	1
	Danube - km 502	07.06.2004	017	3
	Danube - Channel Slobozia	10.06.2004	frontier guard cab.	4
Diamesinae <i>Diamesa insignipes</i> Kieffer in Kieffer and Thienemann, 1908	Mahâru Pump Station	27.04.2004		38
	Danube - Păsărica Islet	28.04.2004	006-008	1
	Danube - Dinu Islet	28.04.2004	015	11
	Danube - Cama Islet	28.04.2004	014	6
	Danube - km 502	28.04.2004	017	10
	Danube - Acalia Islet	16.05.2004	003-005	2
	Danube - Pietriș Islet	16.05.2004	007	1
	Danube - Vâna Islet	19.05.2004	015	1
	Danube - Cărăbulea Islet	07.06.2004	027	4
	Danube - Păsărica Islet	07.06.2004	007-008	7

Table 1 (continued)

Taxa	Station	Date of Collecting	GPS Data	No. ex.
	Danube - km 510	07.06.2004	012	3
	Danube - km 509	07.06.2004	014	22
	Channel in Forest Penciu	22.06.2004	004	19
	Gostinu Channel	22.06.2004		7
	Danube - upstream Mostiștea	23.06.2004	003	3
<i>Pothastia longimana</i> (Kieffer, 1922)	Danube - km 512	28.04.2004	011	2
Prodiamesinae				
<i>Prodiamesa olivacea</i> (Meigen, 1818)	Șaica Pond	26.04.2004	002-006	2
	Mahâru Pump Station	27.04.2004		1
	Danube - km 514	17.05.2004	010	3
	Danube - Cărăbulea Islet	19.05.2004	027	2
	Șaica Pond	16.06.2004	001	3
	Danube - km 514	07.06.2004	010	4
	Channel Forest Penciu	10.06.2004	004	14
	Gostinu Channel	22.06.2004		30
	Slobozia Pond (fish farm)	10.06.2004	001	17
	Danube - upstream Mostiștea	23.06.2004	003	5
Orthocladiinae				
<i>Cricotopus algarum</i> (Kieffer, 1911)	Mahâru Station	27.04.2004		4
	Șaica Pond	16.06.2004	001	32
	Slobozia Pond (fish farm)	10.06.2004	001	7
	Channel Forest Penciu	22.06.2004	004	18
	Channel Gostinu	22.06.2004		24
	Channel Mostiștea	23.06.2004	002	11
<i>Cricotopus fuscus</i> (Kieffer, 1924)	Șaica Pond	26.04.2004	002-006	2
	Slobozia Pond (fish farm)	10.06.2004	001	8
	Channel Forest Penciu	22.06.2004	004	9
	Channel Gostinu	22.06.2004		11
	Danube - upstream Mostiștea	23.06.2004	003	4
<i>Cricotopus triannulatus</i> Macquart, 1826	Danube - Islet Mocanu	21.06.2004	km 488	4
<i>Cricotopus sylvestris</i> (Fabricius 1794)	Slobozia Pond (fish farm)	10.06.2004	001	11
<i>Eukiefferiella gracei</i> (Edwards, 1929)	Danube - km 502	28.04.2004	017	2
	Danube - upstream Mostiștea	23.06.2004	003	3
	Mostiștea Channel	23.06.2004	002	13
<i>Eukiefferiella claripennis</i> (Lundbeck, 1898)	Șaica Pond	26.04.2004	002-006	1
	Slobozia Pond (fish farm)	10.06.2004	001	6
	Channel Forest Penciu	22.06.2004	001	3
	Gostinu Channel	22.06.2004		7
<i>Limnophyes minimus</i> (Meigen, 1818)	Slobozia Pond (fish farm)	10.06.2004	001	27
	Channel Forest Penciu	22.06.2004	004	6
	Gostinu Channel	22.06.2004		3
<i>Limnophyes prolongatus</i> (Kieffer in Thienemann, 1921)	Danube - Dinu Islet	28.04.2004	015	1

Table 1 (continued)

Taxa	Station	Date of Collecting	GPS Data	No. ex.
<i>Metriocnemus hygropetricus</i> Kieffer, 1912	Danube - Mocanu Islet	21.06.2004	km 488	19
	Danube - upstream Mostiștea	23.06.2004	003	5
Chironominae <i>Beckidia zabolotskyi</i> (Goetghebuer, 1938)	Danube at Mouth of Jiu	18.05.2004	020-021	2
	Danube - Albina Islet	23.06.2004	001	1
<i>Chironomus anthracinus</i> Zetterstedt, 1860	Danube - Cama Islet	28.04.2004	014	3
	Danube Slobozia Channel	10.06.2004	frontier guard cab.	4
	Mostiștea Channel	23.06.2004	002	15
	Danube - upstream Mostiștea	23.06.2004	003	4
<i>Chironomus plumosus</i> (Linnaeus, 1758)	Danube - Acalia Islet	16.05.2004	003-005	4
	Danube - Pietriș Islet	16.05.2004	007	1
	Danube - Gitanului Islet	17.05.2004	016	2
	Canal Giurgiu Chemical Plant	10.06.2004		5
	Danube - Mocanu Islet	21.06.2004	km 488	16
	Danube - downstream Mostiștea	23.06.2004	001	21
	Mostiștea Channel	23.06.2004	002	27
	Danube upstream Argeș	23.06.2004	015	12
<i>Chironomus riparius</i> Meigen, 1804	Danube - Mouth of Jiu	18.05.2004	020-021	1
	Danube - Islet Vâna	16.05.2004	015	1
	Danube - downstream Mostiștea	23.06.2004	001	19
<i>Cryptochironomus defectus</i> (Kieffer, 1913)	Danube - Dinu Islet	28.04.2004	015	1
	Danube - Cama Islet	28.04.2004	012	3
	Danube - Vâna Islet	16.05.2004	015	6
	Mostiștea Channel	23.06.2004	002	17
	Danube - upstream Mostiștea	23.06.2004	003	5
<i>Cladopelma friedmanae</i> (Chernovskij, 1949)	Danube upstream Argeș	23.06.2004	015	9
	Danube - Islet Albina	23.06.2004	001	1
<i>Cladopelma lateralis</i> (Goetghebuer, 1934)	Danube - Gitanului Islet	17.05.2004	016	4
<i>Demejerea rufipes</i> (Linnaeus, 1761)	Danube - Mouth of Jiu	18.05.2004	020-021	2
	Danube - Vâna Islet	16.05.2004	015	1
<i>Demicryptochironomus vulneratus</i> (Zetterstedt, 1838)	Danube - Mouth of Jiu	18.05.2004	020-021	1
	Mostiștea Channel	23.06.2004	002	18
	Danube - downstream Mostiștea	23.06.2004	001	7

Table 1 (continued)

Taxa	Station	Date of Collecting	GPS Data	No. ex.
<i>Dicrotendipes nervosus</i> (Staeger, 1839)	Mahâru Pump Station	27.04.2004		5
	Danube - Dinu Islet	28.04.2004	015	2
	Danube - km 502	28.04.2004	017	1
<i>Einfeldia pagana</i> (Meigen, 1838)	Danube - Islet Albina	23.06.2004	001	1
<i>Endochironomus tendens</i> (Fabricius, 1775)	Danube - Acalia Islet	16.05.2004	003-005	22
	Mostiștea Channel	23.06.2004	002	18
<i>Glyptotendipes barbipes</i> (Staeger, 1839)	Danube - Albina Islet	23.06.2004	001	1
<i>Glyptotendipes gripekoveni</i> (Kieffer, 1913)	Mahâru Pump Station	27.04.2004		10
	Danube - Acalia Islet	16.05.2004	003-005	1
	Danube - Gitanului Islet	17.05.2004	016	2
	Danube - Carabulea Islet	19.05.2004	027	1
	Canal Giurgiu Chemical Plant	10.06.2004		3
<i>Lauterborniella agrayloides</i> (Kieffer, 1911)	Danube - Cama Islet	28.04.2004	014	1
<i>Paratanytarsus inopertus</i> (Walker, 1856)	Șaica Pond	26.04.2004	002-006	2
	Mahâru Pump Station	27.04.2004		3
<i>Polypedilum convictum</i> (Walker, 1856)	Danube - Dinu Islet	28.04.2004	016	1
	Mahâru Pump Station	27.05.2004		2
	Danube - Mocanu Islet	21.06.2004	km 488	3
	Gostinu Channel	22.06.2004		12
	Danube - Dinu Islet	28.04.2004	016	1
<i>Polypedilum scalaenum</i> (Schrank, 1803)	Danube - Gitanului Islet	17.05.2004	016	7
	Gostinu Channel	22.06.2004		8
	Danube upstream Argeș	23.06.2004	015	7
	Mostiștea Channel	23.06.2004	002	13
	Danube - Dinu Islet	28.04.2004	016	1
<i>Robackia demeijerei</i> (Kruseman, 1933)	Danube - km 512	28.04.2004	011	3
	Danube - Cama Islet	28.04.2004	014	7
<i>Sergentia longiventris</i> Kieffer, 1924	Danube - Cărăbulea Islet	19.05.2004	027	2
	Danube - km 502	28.04.2004	017	2
	Danube - upstream Mostiștea	23.06.2004	003	7
<i>Stenochironomus gibbus</i> (Fabricius, 1794)	Danube - Dinu Islet	28.04.2004	015	1
	Danube - km 514	28.04.2004	010	2
	Danube - km 512	28.04.2004	011	4
	Danube - km 502	28.04.2004	017	3
	Danube - Acalia Islet	16.05.2004	003-005	1
	Danube - Vâna Islet	16.05.2004	015	1
	Danube - Islet Cărăbulea	19.05.2004	027	4
	Danube - km 514	07.06.2004	010	6
Danube - km 509	07.06.2004	014	6	

Table 1 (continued)

Taxa	Station	Date of Collecting	GPS Data	No. ex.
<i>Cladotanytarsus mancus</i> (Walker, 1856)	Channel Gostinu	22.06.2004		5
	Channel Mostiștea Danube - downstream Mostiștea	23.06.2004	002	15
		23.06.2004	001	11
<i>Tanytarsus gregarius</i> Kieffer, 1909	Danube - Păsărica Islet	28.04.2004	007-008	2
	Danube - Cama Islet	28.04.2004	014	3
	Danube - Acalia Islet	16.05.2004	003-005	2
	Danube - Pietriș Islet	16.05.2004	007	1
	Danube - Gitanului Islet	17.05.2004	016	3
	Danube - Păsărica Islet	07.07.2004	007-008	4
	Danube - km 514	07.06.2004	010	6
	Danube - km 508	07.06.2004	015	3
	Danube - km 507	07.06.2004	016	1
	Danube - Mocanu Islet	21.06.2004	km 488	2
	Gostinu Channel	22.06.2004		5
Ceratopogonidae <i>Ceratopogon</i> sp.	Danube - km 514	28.05.2004	010	1
	Danube - km 502	28.05.2004	017	1
	Danube - Vâna Islet	16.05.2004	015	4
	Danube - Pietriș Islet	16.05.2004	007	1
	Danube - km 514	7.06.2004	010	2
<i>Palpomyia</i> sp.	Danube - km 512	28.04.2004	011	1
	Danube - km 502	28.04.2004	017	1
	Danube - km 502	07.06.2004	017	1
	Păsărica Islet	07.06.2004	007-008	1

It is important to underline that 24 new localities were mentioned for the range of 51 species, these being the most southern reports from Romania.

Gomphus flavipes (Charpentier, 1825) - a dragonfly species protected at European level - is cited from Danube - km 514 and Slobozia Pond (Tab.1).

The structural dynamics of benthic invertebrate fauna from studied sector of the Danube, between 1967 and 2004.

We will compare the taxonomic structure of benthic invertebrate fauna in 1967 (almost 40 years ago) to the present one (2004). There has to be mentioned that there were some difficulties in data comparison, since the older information is not consistently presented on sectors. At the same time there were some methodological differences too, given that in the '60s the samples were collected from only five stations placed from Orșova to Sulina, and in 2004 from 29 stations placed in a sector only half the length of the former.

The analysis was based on the monographic paper "*Limnologia Sectorului Romînesc al Dunării*", thus allowing the realization of a compelling structural table of the benthic fauna from the studied sector of the Danube, in 1967.

Table 2 presents the high rank taxa of invertebrate fauna.

Table 2

List of taxa identified in the studied area.

Taxa	1967	2004
Coelenterata	+	+
Turbellaria	+	+
Nematoda	+	+
Polichaeta	+	-
Oligochaeta	+	+
Hirudinea	+	-
Mollusca		
Gastropoda	+	+
Bivalvia	+	+
Bryozoa	+	-
Isopoda	+	+
Amphipoda	+	+
Mysidacea	+	-
Cumacea	+	-
Copepoda	-	+
Cladocera	-	+
Ostracoda	-	+
Hidracarina	-	+
Collembolla	+	-
Insecta		
Heteroptera	+	+
Odonata	+	+
Ephemeroptera	+	+
Plecoptera	+	-
Trichoptera	+	
Coleoptera	+	+
Trichoptera	+	+
Diptera		
Culicidae	+	+
Empididae		+
Chironomidae	+	+
Ceratopogonidae	+	+
Total	24	21

As one can observe, in 1967, 24 macro-taxa were identified, and 21, in 2004, 16 of them being commune (55.17%).

From the total number of taxa identified, we analyzed in detail only the insects, presented in table 3.

From the table above, one can see that in 1967 the insects were represented by 59 species, while in 2004 there were 58, the percentage of commune species being of 39.28%. Figure 6 presents the proportion of species for each taxonomic group of insects.

Table 3

The comparative list of insect taxa identified in Danube benthos.

Taxa	1967	2004
INSECTA		
HETEROPTERA		
<i>Aphelocheirus aestivalus</i> (Fabricius, 1794)	+	-
<i>Corixa punctata</i> (Illiger, 1807)	+	-
<i>Corixa</i> sp.	+	+
<i>Naucoris</i> sp.	-	+
<i>Plea</i> sp.	-	+
ODONATA		
<i>Aeschna</i> sp.	+	-
<i>Agrion pulchellum</i> Van der Linden, 1825	-	+
<i>Lestes dryas</i> Kirby, 1890	-	+
<i>Anax imperator</i> Leach, 1815	-	+
<i>Gomphus flavipes</i> (Charpentier, 1825)	+	+
<i>Gomphus vulgatissimus</i> Linnaeus, 1758	+	-
<i>Libellula depressa</i> Linnaeus, 1758	-	+
<i>Ophiogomphus serpentinae</i> Charpentier, 1825	+	-
<i>Ophiogomphus pulchelus</i> Selys, 1840	-	-
EPHEMEROPTERA		
<i>Ametropus fragilis</i> Albarda, 1878	+	-
<i>Baetis bioculatus</i> (Linnaeus, 1736)	+	-
<i>Baetis rhodani</i> (Pictet, 1843-45)	-	+
<i>Caenis horraria</i> (Linnaeus, 1758)	+	+
<i>Caenis macrura</i> Stephens, 1835	+	-
<i>Ephemerella ignita</i> (Poda 1761)	+	-
<i>Ephron virgo</i> (Olivier, 1791)	+	-
<i>Heptagenia flava</i> Rostock, 1878	+	-
<i>Oligoneuriella rhenana</i> (Imhoff, 1852)	+	+
<i>Palingenia longicauda</i> (Olivier, 1791)	+	-
PLECOPTERA		
<i>Taeniopterix</i> sp.	+	-
TRICHOPTERA		
<i>Brachycentrus subnubilus</i> Curtis, 1834	+	-
<i>Ecnomus tennelus</i> Rambur, 1832	+	-
<i>Hydropsyche ornatula</i> Mc. Lachlon, 1878	+	-
<i>Neureclipsis bimaculata</i> (Linnaeus, 1785)	+	-
<i>Psychomyia pusilla</i> (Fabricius, 1781)	+	-
<i>Setodes punctata</i> (Fabricius, 1793)	+	-
<i>Stactobia</i> sp.	+	-
COLEOPTERA		
<i>Ilybius</i> sp.	+	+
<i>Peltodytes caesus</i> (Duftschmid, 1805)	-	+
DIPTERA		
CULICIDAE		
<i>Aedes</i> sp.	?	+
EMPIDIDAE		
<i>Hemerodromia</i> sp.	-	+
CHIRONOMIDAE		
Tanypodinae		
<i>Ablabesmyia monilis</i> (Linnaeus, 1758)	-	+
<i>Procladius choreus</i> (Meigen, 1804)	+	+

Table 3 (continued)

Taxa	1967	2004
<i>Tanypus punctpennis</i> Meigen, 1818	+	+
<i>Tanypus vilipennis</i> (Kieffer, 1918)	-	+
<i>Thienemannimyia lentiginosa</i> (Fries, 1823)	+	+
<i>Zavrelimyia melanura</i> (Meigen, 1804)	+	+
Diamesinae		
<i>Diamesa insignipes</i> Kieffer in Kieffer and Thienemann, 1908	+	+
<i>Potthastia longimana</i> (Kieffer, 1922)	-	+
Prodiamesinae		
<i>Prodiamesa olivacea</i> (Meigen, 1818)	+	+
Orthoclaadiinae		
<i>Cricotopus algarum</i> (Kieffer, 1911)	+	+
<i>Cricotopus fuscus</i> (Kieffer, 1924)	-	+
<i>Cricotopus triannulatus</i> Macquart, 1826	-	+
<i>Cricotopus sylvestris</i> (Fabricius, 1794)	+	+
<i>Eukiefferiella gracei</i> (Edwards, 1929)	+	+
<i>Eukiefferiella claripennis</i> (Lundbeck, 1898)	-	+
<i>Eukiefferiella longipes</i> Chernovskii, 1949	+	-
<i>Limnophyes minimus</i> (Meigen, 1818)	-	+
<i>Limnophyes prolongatus</i> (Kieffer in Thienemann, 1921)	+	+
<i>Metriocnemus hygropetricus</i> Kieffer, 1912	+	+
<i>Nanocladius bicolor</i> (Zetterstedt, 1838)	+	
Chironominae		
<i>Beckidia zabolotskyi</i> (Goetghebuer, 1938)	+	+
<i>Chironomus anthracinus</i> Zetterstedt, 1860	+	+
<i>Chironomus plumosus</i> (Linnaeus, 1758)	+	+
<i>Chironomus riparius</i> Meigen, 1804	+	+
<i>Cryptochironomus defectus</i> (Kieffer, 1913)	+	+
<i>Cladopelma friedmanae</i> (Chernovskij, 1949)	-	+
<i>Cladopelma lateralis</i> (Goetghebuer, 1934)	-	+
<i>Demeijerea rufipes</i> (Linnaeus, 1761)	+	+
<i>Demicryptochironomus vulneratus</i> (Zetterstedt, 1838)	+	+
<i>Dicrotendipes nervosus</i> (Staeger, 1839)	+	+
<i>Einfeldia pagana</i> (Meigen, 1838)	-	+
<i>Endochironomus tendens</i> (Fabricius, 1775)	-	+
<i>Glyptotendipes barbipes</i> (Staeger, 1839)	-	+
<i>Glyptotendipes gripekoveni</i> (Kieffer, 1913)	-	+
<i>Harnischia burganadzeae</i> (Chernovskij, 1949)	+	-
<i>Harnischia fuscimana</i> Kieffer, 1921	+	-
<i>Lauterborniella agrayloides</i> (Kieffer, 1911)	+	+
<i>Paratanytarsus inopertus</i> (Walker, 1856)	-	+
<i>Paratendipes nudisquama</i> (Edwards, 1929)	+	-
<i>Polypedilum convictum</i> (Walker, 1856)	+	+
<i>Polypedilum scalaenum</i> (Schrank, 1803)	+	+
<i>Robackia demeijerei</i> (Kruseman, 1933)	+	+
<i>Sergentia longiventris</i> Kieffer, 1924	+	+
<i>Stenochironomus gibbus</i> (Fabricius, 1794)	+	+
<i>Cladotanytarsus mancus</i> (Walker, 1856)	-	+
<i>Tanytarsus gregarius</i> Kieffer, 1909	+	+
CERATOPOGONIDAE		
<i>Bezzia</i> sp.	+	-
<i>Ceratopogon</i> sp.	+	+
<i>Palpomyia</i> sp.	-	+

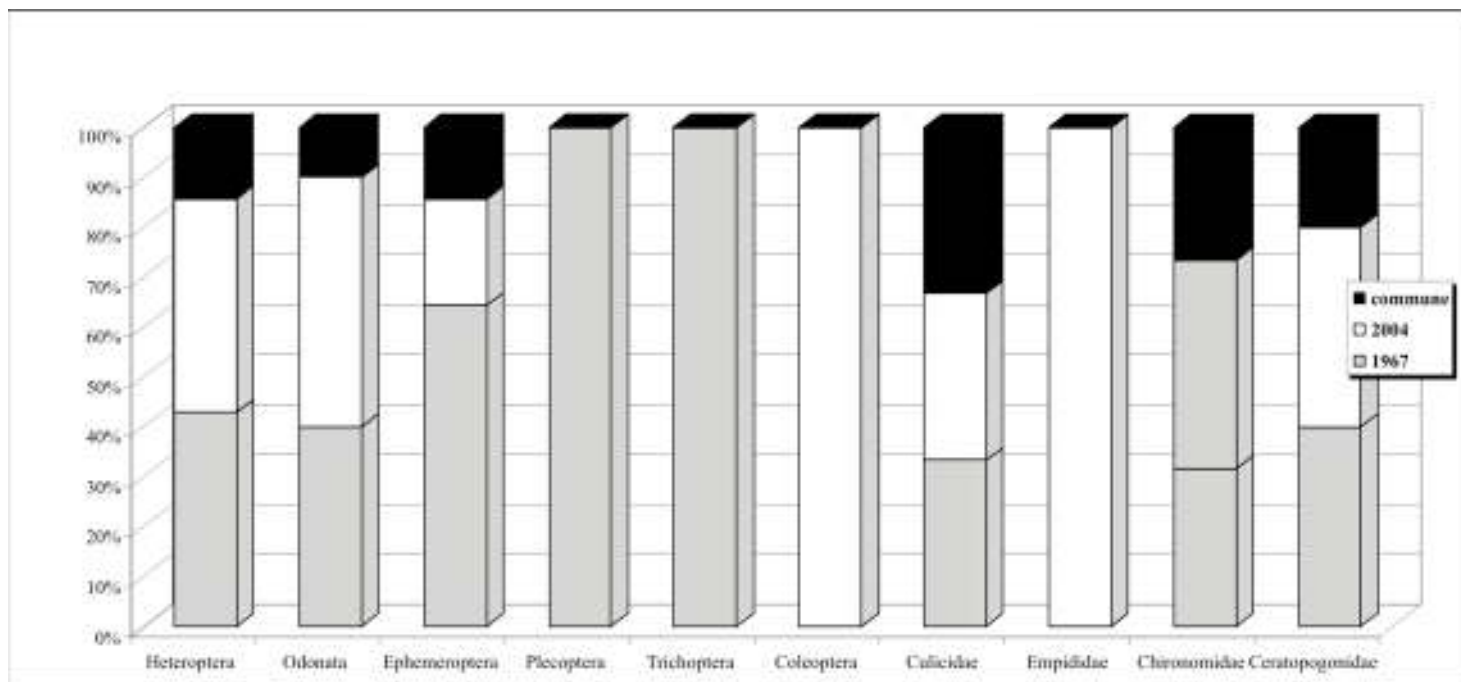


Fig. 6 – Taxonomical comparison of insect fauna structure.

Thus, between the two data sets there are some differences but not major ones.

In conclusion some ideas are to be underlined:

- At macro-taxonomic level (Tab. 2) the number of benthic groups of organisms is slightly lower in 2004 than in 1967, being of 24 and 21 respectively.
- In 2004, some crustaceans (copepods and cladocerans) typical for lacustrine ecosystems appear, as an influence of the upstream Iron Gates I and II dam lakes.
- In 2004, no polychaets, hirudineans, plecopterans, or trichopterans were found, because of both floodplain ecosystem disappearing and sandy bottom ubiquity.
- In 2004, the number of ephemeropteran species also decreased as a consequence of floodplain ecosystem disappearing.
- Many of the species identified are psamophilous, especially the chironomids, which are dominant.

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CARACTERIZAREA DINAMICII TAXONOMICE A FAUNEI BENTONICE DIN SECTORUL ROMÂNESC AL DUNĂRII, DINTRE KM 767-398

REZUMAT

Se prezintă un inventar al faunei bentonice, obținut prin prelucrarea a 92 de probe colectate din 29 de stații amplasate în sectorul românesc al Dunării, între km 767-398. Totodată se analizează comparativ aspectul structurii taxonomice stabilit în 1967 cu cel realizat de către noi, în 2004. O importanță deosebită trebuie acordată menționării celor 24 de noi localități pentru arealul a 51 de specii de insecte (Tabelul 1). Toate aceste localități trebuie considerate a fi și cele mai sudice, pe teritoriul României. *Gomphus flavipes* (Charpentier, 1825), găsită în stațiile Dunăre - km 514 și balta Slobozia – este o specie de odonat protejată la nivel european.

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