

Contribution to the macroinvertebrate fauna of the Hungarian Danube. I. Introduction, sampling sites and methods

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Introduction

In the past two decades the biodiversity of the Danube has significantly changed. These changes affected all of the river biota, among them the populations and communities of the profundal and littoral regions (WACHS 1997). Primarily, the species number and the density of the populations decreased, but in certain sections an increase in number of species could also happen. For example in 1967 128 gastropods occurred in the whole length of the Danube (DUDICH 1967), by 1990 this number decreased to 91 (FRANK *et al.* 1990). In 1995 on the Austrian section 1142 benthic species were recorded by MOOG *et al.* (1995), one hundred species less than before (WACHS 1997). The greatest decrease could be detected in the case of litho-rheophile species (Ephemeroptera, Simuliidae, Gammaridae) (TITTIZER *et al.* 1990).

Besides the species number decrease, to a lesser degree, but the appearance and dispersion of new species not registered earlier also play an important role in the changes of biodiversity of a given area. The changes of habitats facilitate the invasion of new species. In the case of the Danube the opening and operation of Rhine-Main-Danube Canal has allowed the direct connection between the two main watershed areas, which step was followed by an enormous increase in ship traffic. In consequence of this direct connection, both the passive dispersion (e.g. larval drift, ship ballast water, bio-fouling) and the active migration of the species promoted the increase of the distribution area of some species and/or the appearance of species in new or modified biotopes emerging by human impacts (TITTIZER 1997a). Since 1992, the opening of the Rhine-Main-Danube Canal, many Pontocaspian species have occurred in the river Rhine (e.g. *Dikerogammarus haemobaphes*, *Dikerogammarus villosus*, *Jaera sarsi*), but other examples confirm the opposite dispersion down stream the Danube (e.g. *Atyaephyra desmaraesti*, *Corbicula fluminea/fluminalis*) (TITTIZER 1997b).

Our knowledge about the macroinvertebrate fauna of the main channel and the side branch systems along the Hungarian Danube section is very diverse in relation to space, time and taxonomic groups. From the period prior to the 60s we have only sporadic data, e.g. about the occurrence of *Limnomysis benedeni* (Woyrnarowich 1954). In the first half of the 60s an extensive survey of the macroinvertebrate fauna living in the profundal and littoral regions and in the periphyton of swimming pontoons had been conducted both in the main channel of the river and in the Mosoni Danube (ANDRÁSSY 1962, 1966, BERCZIK 1966a, 1966b, 1969a, 1969b, BOTHÁR 1966, RICHNOVSZKY 1967, SOÓS 1967). DUDICH (1967) had compiled the comprehensive zoological inventory of the Hungarian Danube section on the basis of the formerly accessible literature. From the consecutive periods to the 90s there were only sporadic data (POMICHAL 1984; FRANK

et al. 1990, NOSEK & OERTEL 1980/81, PUKY 1994, 1995a, 1996, RICHNOVSZKY 1975). Data from the Soroksár-Danube had been presented by TYAHUN (1977). From the beginning of the 90s macrozoobenthos surveys have started in the frame of biological monitoring of the Hungarian rivers and one part of the data refers to the Danube, too (CSÁNYI 1994, 1996, 1998). Regarding the side branch system of the Szigetköz, there are fewer published data (BERCZIK 1967, NOSEK 1996, PUKY 1995b). Our knowledge is even less about the macroinvertebrate communities of the wetland of the Gemenc area (CSÁNYI *et al.* 1994, RICHNOVSZKY 1963).

Water bugs living in the water and water surface were omitted from hydrobiological surveys during the last decades. To the end of the 90s some data of the saucer bug (*Aphelocheirus aestivalis*) arose from Danube habitats (AMBRUS *et al.* 1995) and the occurrence of *Sigara fossarum* from the Szigetköz was reported (BAKONYI 1990). The aquatic beetle fauna of the Danube was practically unknown, only a few published data existed (ÁDÁM 1992).

From the end of the 90s the number of publications has significantly increased. A part of these publications contain data not only from the water system of the Hungarian Danube (VARGA *et al.* 1997; CSÁNYI 1998–99; KOVÁCS *et al.* 1998–99; VARGA *et al.* 1998–99; CSABAI *et al.* 2001; CSABAI 2002; JUHÁSZ & BÉKÉSI 2002; JUHÁSZ *et al.* 2001, 2002; KOVÁCS *et al.* 2003; KOVÁCS *et al.* 2004; KOVÁCS 2005; KOVÁCS *et al.* 2005), but a great number of publications were really devoted to the Danube or its wetland areas (ANDRIKOVICS *et al.* 2001; UHERKOVICH & NÓDRÁDI 2001, 2003, 2004; NÓGRÁDI & UHERKOVICH 2002; WEINZIERL *et al.* 2002; KOVÁCS & AMBRUS 2003; CSABAI *et al.* 2005; BÓDIS & OERTEL 2005; OERTEL *et al.* 2005; PUKY *et al.* 2005; VÁSÁRHELYI *et al.* 2005; ANDRIKOVICS *et al.* 2006a, 2006b; CSABAI & NOSEK 2006a, 2006b; BÓDIS *et al.* 2006; BÓDIS & NOSEK 2006; PUKY & SCHÁD 2006; BORZA 2007; VÁSÁRHELYI *et al.* 2007).

The publication series starting now will contain the faunistic results of different macroinvertebrate investigations (OERTEL & NOSEK 2006) carried out by the Hungarian Danube Research Station of the Hungarian Academy of Sciences in the last fourteen years. Collections were made by the members of the Station (Erika Bódis /BE/, Péter Borza /BP/, Gábor Csörgits /CsG/, Tibor Erős /ET/, János Nosek /NJ/, Nándor Oertel /ON/, Miklós Puky /PM/). In the period 2002–2005 within the frame of a biodiversity survey of the Danube as well as the Szigetköz, Gemenc and Béda-Karapanca Landscape Protection Areas members of several other institutions joined to the collection (Sándor Andrikovics /AS/ Eszterházy Károly College Dept. of Zoology, Gábor Bakonyi /BG/ Szent István University Dept. Zoology and Ecology, Zoltán Csabai /CsZ/ University of Pécs, Dept. of General and Applied Ecology, Edit Molnár /ME/ Institute of Ecology and Botany of HAS, Tamás Vásárhelyi /VT/ Hungarian Natural History Museum).

Materials and methods

General characteristics of the sampling areas

Till the 90s of the last century the 417-km-long Hungarian Danube reach (1850–1434 river km) could be divided into two parts on hydrological basis. The first one from the west border to Gönyű (1850–1794 river km) could be characterised by a higher slope (0,4–0,14 ‰) and current velocity (2,1–1,8 msec⁻¹). At Szap (1812 rkm) the slope decreases quick to 0.10–0.08-‰ resulting an enormous bed-load deposition building up the alluvial fan in the Szigetköz and Csallóköz area. The second part reaching from Gönyű to the south border (1794–1434 river km) – apart from the narrow valley of the Danube Bend – is of middle course character with a low slope (0,1–0,04‰) and current velocity (1,2–0,8 msec⁻¹ in the period of mean water level) (TÓRY 1952).

From 1992 the hydrological conditions of the main channel in the west border-Medve section (1850–1806 river km) have changed significantly due to the diversion of the River Danube to the operation canal of the Bős/Gabcikovo hydroelectric power plant. In the abandoned main channel (Old Danube, 1850 – 1812 river km) the former water discharge ($2200 \text{ m}^3\text{sec}^{-1}$ on average) decreased to $400 \text{ m}^3\text{sec}^{-1}$ (on average). The water level was lowered by 3–4 m, and hence the ground water level was lowered to a great extent, too.

The 57-km-long Ráckevei-(Soroksári-)Danube is the longest side-branch of the Hungarian Danube. It is situated south from Budapest between river kilometres 1842.5 and 1586 on the left side of the main channel. Water regime of the branch is governed by two lock-gates (Kvassay lock-gate on the north and Tassi lock-gate on the south end). The fluctuation of the water level does not exceed 10–20 cm, stream velocity is very low ($0 - \text{cm sec}^{-1}$). The whole side-branch is a recreation area.

Szigetköz, one of the two wetlands along the Hungarian Danube, is situated in the northwest part of Hungary between the main channel of the Danube (border to Slovakia) and the Mosoni Danube down streams from Rajka to the city of Győr. The area of the Szigetköz is 375 km^2 .

Before the 90s of the last century the hydrological regime of the water bodies was governed by the Danube. The separate side-branch systems – in different degree and for various periods of time – were directly connected to the main channel, subject to both the Danube actual water level and the bottom level of the branch. The oxbow lakes on the active alluvial flood plain and on the flood-protected area generally got their water supply by ground water. They were directly connected with the main channel only during high flood periods.

In 1992, after the diversion of the Danube radical alterations occurred in the situation described above. Due to the decrease in water discharge most of the side branches lost their direct connection with the main channel as the water level of the Old Danube became lower than the bottom levels of the upper mouth of the side branches. Both the water level and the area of the oxbow lakes supplied by ground water decreased to great extent.

From 1993 several technical measures have been implemented in order to reduce the scarcity of water. Former independent side branch systems, oxbow lakes were interconnected by new artificial canals and shortcuts or by dredged old natural branches to form a water supply system. To provide the supply system with water by natural gravity, a bottom sill was built in the abandoned main channel at river kilometre 1843, at Dunakiliti in 1995.

The Gemenc Landscape Protection Area, so called „Gemenc”, the last near natural floodplain of the Hungarian Danube is situated on the right side of the Danube between the mouth of River Sió (river km mark 1498) and the mouth of the Bártai branch (river km mark 1465).

The area has been formed both by the water regime of the Danube and the human regulating activity. The recent situation is the result of the dam building between 1870 and 1872. The dam followed the estate boundary of the Primateship of Kalocsa between Bogyzsló and Bába, 3–8 km far from the Danube. Due to the river bed allocations of the Danube and the regulating activity there are on the floodplain a lot of side branches, oxbow lakes and wet meadows of different shape and size interconnected with a network of narrow artificial canals, called “fok”. The water level and hence the area, the hydrological character (running or standing water), the duration of inundation and the connection among the different water bodies depend on the actual water regime of the Danube.

Apart from the side branches with permanent flow (e.g. Rezáti-Duna) the water bodies are independent from each other unless the water level of the Danube exceeds 350 cm on the water level gauge at Baja. Connection of the water bodies begins through the canals (“fok”) depending on their bottom level between 400 and 450 cm. Above 450 cm streaming will be permanent and at water levels greater than 600 cm the majority of the floodplain is covered by water.

Surface waters of the Béda-Karapanca Landscape Protection Area are situated on both sides of the Danube. They are partly backwaters of former Danube side branches (e.g. Külső-Béda, Belső-Béda, Bédai-holtág, Boki-Duna, Riha-tó, Baracska-Duna, Kadia), partly artificial canals connecting the backwaters (Ferenc-csatorna, Karapanca-főcsatorna, Déli-főgyűjtő, etc.). Apart from a few exceptions (Külső-Béda, Mocsos-Duna) they lie on the protected area.

Sampling sites

Collections were made in a total at 451 sampling places within the above mentioned areas. Table 1 contains the list of sampling sites, their codes, geographical positions, locality (administrative unit), the codes of microhabitats from where animals were collected and the water system or landscape to which the site belongs. As in the subsequent papers presenting the results of separate taxonomic groups the sampling sites will be referred to by codes, so Table 1 contains the sites listed in alphabetical order of their code to make the search easy.

Table 1. Characteristics of sampling sites. (Explanation: aaf = active alluvial floodplain, ág = branch, ágrendszer = branch system, átvágás = cuttoff, bukó = weir, csatorna = canal, főcsatorna, főgyűjtő csatorna = main canal, holtág = oxbow lake, láp = marsh, LPA = Landscape Protection Area, mellékág = side branch, morotva = oxbow lake, tó = lake, sziget = isle, zátony = bank. Explanation of abbreviations in column “microhabitat” see in Table 2).

Code	Sampling site	Locality	Position (lat/lon)	Microhabitat	Water system and/or landscape
ADO1	Danube main channel, 1598.0 river km	Adony	N47 06 47.6 E18 52 52.7	SA-MU	Danube main channel
ALF1	Danube main channel, 1761.0 river km	Komárom	N47 44 24.1 E18 12 29.2	SA-GR	Danube main channel
ALM1	Danube main channel, 1851.0 river km	Neszemély	N47 44 10.7 E18 20 26.5	SA-CL	Danube main channel
ARA1	Araki láp, NW side	Halászi	N47 51 48.6 E17 21 31.2	DET	Szigetköz, protected area
ARA2	Araki láp, SE side, open water	Halászi	N47 51 44.2 E17 21 39.3	DET	Szigetköz, protected area
ARA3	Araki láp, SE side, reed stand	Halászi	N47 51 43.3 E17 21 42.9	EMV	Szigetköz, protected area
ASV1	Ásványi-ág, lower mouth	Ásványráró	N47 49 42.8 E17 33 08.5	RR	Szigetköz, aaf
ASV2	Ásványi-ág, harbour	Ásványráró	N47 50 17.7 E17 31 06.5	RR	Szigetköz, aaf
ASV3	Ásványi-ág, Völgy-sziget	Ásványráró	N47 50 09.4 E17 32 20.7	SA, SMV	Szigetköz, aaf
ASV5	Ásványi-ágrendszer, small branch near Halrekesztői-Duna	Ásványráró	N47 50 13.2 E17 30 38.4	EMV, SMV	Szigetköz, aaf
ASV6	Ásványi-ág, water-level gauge	Ásványráró	N47 49 57.3 E17 32 33.1	SA-GR-ST	Szigetköz, aaf
BAD1	Baracskai-Duna, N side at Réti-pusztá	Nagybaracska	N46 03 28.6 E18 53 04.4	EMV, SMV	Béda-Karapancsa LPA
BAD2	Baracskai-Duna, W side at Tanácserdő	Dunafalva	N46 03 39.8 E18 50 17.8	EMV, SMV	Béda-Karapancsa LPA
BAG1	Bagaméri-ág, Pörös-sziget	Ásványráró	N47 48 17.3 E17 34 40.5	SA, SMV	Szigetköz, aaf
BAG2	Bagaméri-ág, water-level gauge	Ásványráró	N47 48 40.2 E17 36 40.4	SA, SMV	Szigetköz, aaf
BAG3	Bagaméri-ágrendszer, canal W from Nagy-Paitkő	Győrzámoly	N47 47 46.6 E17 36 58.1	SMV	Szigetköz, aaf
BAJ1	Danube main channel, 1478.5 river km	Baja	N46 10 43.1 E18 55 04.9	RR	Danube main channel
BAJ2	Danube main channel, 1480.0 river km	Baja	N46 11 30.7 E18 55 26.7	GR, RR, LIV	Danube main channel
BAJ3	Sugovica	Baja	N46 10 44.6 E18 56 44.8	GR, RR, LIV	Danube main channel
BAL1	Báli-tó I.	Baja	N46 11 31.6 E18 53 56.5	FLO-MEAD	Gemenc LPA
BAL2	Báli-tó II.	Baja	N46 11 33.0 E18 53 58.0	FLO-MEAD	Gemenc LPA
BDH1	Bédai-holtág, W side	Kölked	N45 55 43.7 E18 42 23.0	EMV, SMV	Béda-Karapancsa LPA
BDH2	Bédai-holtág, E side	Kölked	N45 55 43.3 E18 42 24.1	EMV, SMV	Béda-Karapancsa LPA
BDE3	Bédai-holtág at Erdőfü	Kölked	N45 54 33.2 E18 45 22.2	EMV, SMV	Béda-Karapancsa LPA
BEB1	Belső-Béda, NW side	Kölked	N45 55 30.2 E18 44 28.7	EMV, SMV	Béda-Karapancsa LPA
BEB2	Belső-Béda, SE side	Kölked	N45 55 28.6 E18 44 30.9	EMV, SMV	Béda-Karapancsa LPA
BEB3	Belső-Béda at the sluice to Külső Béda	Kölked	N45 55 39.6 E18 45 48.8	EMV, SMV	Béda-Karapancsa LPA

Code	Sampling site	Locality	Position (lat/lon)	Microhabitat	Water system and/or landscape
BEK1	Külső-Béda, S side I.	Kölked	N45 55 43.5 E18 45 26.4	SA-GR-ST	Béda-Karapancsa LPA
BEK2	Külső-Béda, S side II.	Kölked	N45 55 43.5 E18 45 26.5	EMV, SMV	Béda-Karapancsa LPA
BEK3	Külső-Béda at the sluice to Belső-Béda	Kölked	N45 55 44.4 E18 45 45.0	EMV, SMV	Béda-Karapancsa LPA
BFD1	Baracskaí Fás-Duna NW from Hatház	Bátmonostor	N46 06 52.6 E18 53 01.7	EMV, SMV, FLV	Béda-Karapancsa LPA
BFD2	Baracskaí Fás-Duna at Hatház	Bátmonostor	N46 06 37.7 E18 53 32.8	EMV, SMV, FLV	Béda-Karapancsa LPA
BOD1	Bodaki-ágrendszer, small arm NE from dam-keeper's house	Kisbodak	N47 53 58.2 E17 25 39.0	EMV, SMV	Szigetköz, aaf
BOD2	Bodaki-ágrendszer, lower mouth	Kisbodak	N47 53 48.0 E17 26 33.0	EMV, SMV	Szigetköz, aaf
BOD3	Bodaki-ágrendszer, small arm at main channel 1831 rkm	Dunasziget	N47 55 22.0 E17 25 37.0	EMV, SMV	Szigetköz, aaf
BOK1	Boki-Duna, SW side	Kölked	N45 54 00.2 E18 46 48.7	SMV	Béda-Karapancsa LPA
BOK2	Boki-Duna, NE side	Kölked	N45 54 02.2 E18 46 52.3	EMV, SMV	Béda-Karapancsa LPA
BPAl	Danube main channel, 1654.5 river km	Budapest III.	N47 33 52.2 E19 03 49.6	GR, RR	Danube main channel
BPE1	Danube main channel, 1646.1 river km	Budapest V.	N47 29 29.2 E19 03 03.0	RR	Danube main channel
BPE2	Danube main channel, 1646.0 river km	Budapest I.	N47 29 22.5 E19 02 54.1	RR	Danube main channel
BPM1	Danube main channel, 1648.6 river km	Budapest XIII.	N47 30 53.3 E19 02 36.7	SA-GR-ST	Danube main channel
BPM2	Danube main channel, 1649.0 river km	Budapest XIII.	N47 31 01.9 E19 02 43.0	RR	Danube main channel
BPRI	Danube main channel, 1656.5 river km	Budapest III.	N47 35 02.4 E19 04 04.4	SA-GR	Danube main channel
BPSI	Danube main channel, 1645.2 river km	Budapest XI.	N47 29 04.1 E19 03 10.7	GR, RR	Danube main channel
BPT1	Danube main channel, 1653.0 river km I.	Budapest XIII.	N47 32 59.1 E19 03 57.5	RR	Danube main channel
BPT2	Danube main channel, 1653.0 river km II.	Budapest XIII.	N47 32 59.9 E19 03 58.7	RR	Danube main channel
BPV1	Danube main channel, 1646.5 river km	Budapest V.	N47 29 43.4 E19 02 52.9	GR, RR	Danube main channel
BTH1	Bátai-Holt-Duna I.	Báta	N46 07 53.6 E18 47 19.2	SMV, FLV	Gemenc LPA
BTH2	Bátai-Holt-Duna II.	Báta	N46 09 51.9 E18 47 52.7	EMV, SMV	Gemenc LPA
BTH3	Bátai-Holt-Duna III.	Báta	N46 07 51.7 E18 47 24.6	SMV	Gemenc LPA
BTH4	Bátai-Holt-Duna IV.	Báta	N46 08 30.0 E18 47 57.7	SMV	Gemenc LPA
BTH5	Bátai-Holt-Duna V.	Báta	N46 08 26.7 E18 47 34.4	SMV	Gemenc LPA
BTH6	Bátai-Holt-Duna VI.	Báta	N46 08 09.1 E18 47 19.9	SMV	Gemenc LPA
CIK1	Cikolai-ágrendszer, above Kisvesszősi bukó	Dunasziget	N47 56 33.2 E17 22 35.4	SMV	Szigetköz, aaf
CIK2	Cikolai-ágrendszer, lower mouth	Dunasziget	N47 55 56.3 E17 24 28.0	SA-GR-ST, EMV, SMV	Szigetköz, aaf
CIK3	Cikolai-ágrendszer, Kisvesszősi bukó tail-water	Dunasziget	N47 56 25.7 E17 22 46.5	RR	Szigetköz, aaf

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CIK4	Cikolai ágrendszer; Kisvesszősi bukó head-water	Dunasziget	N47 56 25.7 E17 22 46.0	EMV, SMV	Szigetköz, aaf
CIK5	Cikolai ágrendszer at Cikolasziget	Dunasziget	N47 57 35.0 E17 22 25.1	SMV	Szigetköz, aaf
CIK6	Cikolai ágrendszer small arm E from Nylon-gát	Dunasziget	N47 57 12.0 E17 22 46.2	SMV	Szigetköz, aaf
CIK7	Cikolai ágrendszer; Jakabi zárás	Dunasziget	N47 56 27.6 E17 23 20.7	SMV	Szigetköz, aaf
CIK8	Cikolai ágrendszer; Nagysziget	Dunasziget	N47 55 44.9 E17 22 42.2	EMV, SMV	Szigetköz, aaf
CIK9	Cikolai ágrendszer; Nyáras-sziget	Dunasziget	N47 54 46.4 E17 22 55.4	EMV, SMV	Szigetköz, aaf
CKA1	Cikolai ágrendszer; Hajós-sziget	Dunasziget	N47 56 04.6 E17 24 19.8	EMV, SMV	Szigetköz, aaf
CSA1	Csákányi-Duna I., Csákányi-bukó	Dunasziget	N47 57 17.8 E17 21 40.0	RR	Szigetköz, aaf
CSA2	Csákányi-Duna II.	Dunasziget	N47 57 17.2 E17 21 40.6	RR, LIV	Szigetköz, aaf
CSA3	Csákányi-Duna III.	Dunasziget	N47 57 14.6 E17 21 47.7	SMV	Szigetköz, aaf
CSA4	Csákányi-Duna IV.	Dunasziget	N47 57 16.4 E17 21 40.3	SMV	Szigetköz, aaf
CSA5	Csákányi-Duna V.	Dunasziget	N47 57 03.6 E17 21 44.4	RR	Szigetköz, aaf
CSA6	Csákányi-Duna VI.	Dunasziget	N47 57 01.2 E17 21 46.8	RR	Szigetköz, aaf
CSA7	Csákányi-Duna VII.	Dunasziget	N47 56 56.4 E17 21 53.4	RR	Szigetköz, aaf
CSA8	Csákányi-Duna VIII.	Dunasziget	N47 56 55.2 E17 21 59.4	EMV	Szigetköz, aaf
CSA9	Csákányi-Duna IX.	Dunasziget	N47 56 50.4 E17 22 10.2	MU	Szigetköz, aaf
CSD1	Cserta-Duna I., W from bridge	Baja	N46 11 46.9 E18 53 04.9	SMV, LIV	Gemenc LPA
CSD2	Cserta-Duna II., E from bridge	Baja	N46 11 46.9 E18 53 06.0	SMV, LIV	Gemenc LPA
CSD3	Cserta Duna III.	Baja	N46 12 51.8 E18 52 23.0	SMV	Gemenc LPA
CSD4	Cserta Duna IV.	Pörboly	N46 12 22.2 E18 51 55.2	SMV	Gemenc LPA
CSD5	Cserta Duna V.	Baja	N46 11 47.0 E18 52 23.0	SMV	Gemenc LPA
CSD6	Cserta Duna VI.	Baja	N46 11 47.8 E18 52 53.4	SMV	Gemenc LPA
CSK0	Csákányi-Duna X.	Dunasziget	N47 57 48.1 E17 22 08.0	SMV	Szigetköz, aaf
CSK1	Csákányi-Duna XI.	Dunasziget	N47 57 30.6 E17 21 58.2	SMV	Szigetköz, aaf
CSK2	Csákányi-Duna XII.	Dunasziget	N47 57 30.5 E17 21 57.6	EMV	Szigetköz, aaf
CSK3	Csákányi-Duna XIII.	Dunasziget	N47 57 27.0 E17 21 58.8	EMV, SMV	Szigetköz, aaf
CSK4	Csákányi-Duna XIV.	Dunasziget	N47 57 18.6 E17 21 54.0	EMV, SMV	Szigetköz, aaf
CSK5	Csákányi-Duna XV.	Dunasziget	N47 57 18.1 E17 21 53.9	SMV	Szigetköz, aaf
CSO1	Csákányi-Duna XVI.	Dunasziget	N47 57 15.6 E17 21 46.8	EMV	Szigetköz, aaf
CSO2	Csákányi-Duna XVII.	Dunasziget	N47 57 13.8 E17 21 45.6	EMV, SMV	Szigetköz, aaf
CSO3	Csákányi-Duna XVIII.	Dunasziget	N47 57 13.2 E17 21 45.6	SMV	Szigetköz, aaf
CSP1	Ráckevei-(Soroksári-)Duna, 52.4 river km	Budapest XXI.	N47 25 18.6 E19 05 33.6	EMV, SMV, DET	Ráckevei-(Soroksári-)Duna

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DBO1	Szentendrei-Duna, 27.5 river km	Dunabogdány	N47 47 49.4 E19 01 50.5	SA-GR	Szentendrei-Duna
DFC1	Déli-főgyűjtő csatorna at Hóduna	Hercegszántó	N45 55 29.9 E18 49 30.6	EMV, SMV, FLV	Béda-Karapancsa LPA
DFL1	Danube main channel, 1560.0 river km	Dunaföldvár	N46 48 27.8 E18 55 57.6	SA-GR	Danube main channel
DIS1	Disznós-ág I.	Dunasziget	N47 56 49.8 E17 22 26.4	TRO	Szigetköz, aaf
DIS3	Disznós-ág II.	Dunasziget	N47 56 55.2 E17 22 19.2	EMV	Szigetköz, aaf
DIS4	Disznós-ág III.	Dunasziget	N47 56 57.6 E17 22 16.8	EMV	Szigetköz, aaf
DIS5	Disznós-ág IV.	Dunasziget	N47 57 00.0 E17 22 08.4	SMV	Szigetköz, aaf
DKD1	Decsi-Kis-Holt-Duna I.	Decs	N46 17 33.7 E18 52 12.1	LIV	Gemenc LPA
DKD2	Decsi-Kis-Holt-Duna II.	Decs	N46 17 21.2 E18 52 13.3	EMV, SMV, FLV	Gemenc LPA
DKD5	Temporary puddle in wheel track W from Decsi-Kis-Holt-Duna	Decs	N46 17 27.8 E18 51 58.8	MU	Gemenc LPA
DKD6	Decsi-Kis-Holt-Duna VI.	Decs	N46 17 25.1 E18 52 10.9	SMV, FLV	Gemenc LPA
DKD7	Decsi-Kis-Holt-Duna VII.	Decs	N46 17 25.5 E18 52 10.6	SMV, FLV	Gemenc LPA
DKD8	Decsi-Kis-Holt-Duna VIII.	Decs	N46 17 34.2 E18 52 18.0	SMV, FLV	Gemenc LPA
DKD9	Decsi-Kis-Holt-Duna IX.	Decs	N46 17 36.0 E18 52 13.9	EMV, SMV, FLV	Gemenc LPA
DKE1	Danube main channel, 1661.0 river km	Budapest IV.	N47 36 09.4 E19 05 27.0	SA-GR	Danube main channel
DKI0	Danube main channel, 1843.0 river km, bottom sill, head-water	Dunakiliti	N47 59 41.0 E17 18 55.1	MU, SMV	Szigetköz, Öreg-Duna
DKI1	Danube main channel, 1843.0 river km, bottom sill, tail-water	Dunakiliti	N47 59 41.5 E17 19 05.2	GB	Szigetköz, Öreg-Duna
DKI2	Danube main channel, 1843.0 river km, bottom sill	Dunakiliti	N47 59 42.1 E17 18 58.3	RR	Szigetköz, Öreg-Duna
DKI3	Danube main channel, 1842.0 river km	Dunakiliti	N47 59 42.4 E17 19 29.2	RR	Szigetköz, Öreg-Duna
DKI4	Danube main channel, 1843.4 river km, I.	Dunakiliti	N47 59 39.8 E17 18 46.4	SA-MU	Szigetköz, Öreg-Duna
DKI5	Danube main channel, 1843.4 river km, II.	Dunakiliti	N47 59 39.8 E17 18 48.1	SMV	Szigetköz, Öreg-Duna
DKI6	Danube main channel, 1843.4 river km, III.	Dunakiliti	N47 59 39.8 E17 18 45.8	RR	Szigetköz, Öreg-Duna
DKI7	Danube main channel, 1842.8 river km	Dunakiliti	N47 59 40.8 E17 19 15.2	SMV	Szigetköz, Öreg-Duna
DKI8	Danube main channel, 1843.0 river km	Dunakiliti	N47 59 39.8 E17 19 04.8	LIV	Szigetköz, Öreg-Duna
DKI9	Danube main channel, 1842.0 river km	Dunakiliti	N47 59 41.6 E17 19 31.4	LIV	Szigetköz, Öreg-Duna
DND1	Decsi-Nagy-Holt-Duna I.	Decs	N46 16 39.0 E18 51 33.0	SMV, FLV	Gemenc LPA
DND2	Decsi-Nagy-Holt-Duna II.	Decs	N46 16 52.1 E18 52 18.2	LIV	Gemenc LPA
DND5	Canal between Decsi Nagy-Holt-Duna – Malomtelelő-tó	Decs	N46 15 51.6 E18 50 52.2	SMV, LIV	Gemenc LPA

Code	Sampling site	Locality	Position (lat/lon)	Microhabitat	Water system and/or landscape
DND6	Temporal backwater from flood, W from Decsi-Nagy-Holt-Duna, I.	Decs	N46 16 51.0 E18 51 23.9	FLO-LIV	Gemenc LPA
DND7	Temporal backwater from flood, W from Decsi-Nagy-Holt-Duna, II.	Decs	N46 16 52.5 E18 51 22.1	FLO-LIV	Gemenc LPA
DND8	Decsi-Nagy-Holt-Duna III.	Decs	N46 16 54.2 E18 52 15.7	EMV, SMV, FLV	Gemenc LPA
DOB1	Canal at Doborzai-átvágás	Dunasziget	N47 57 33.7 E17 21 23.2	SMV, LIV	Szigetköz, aaf
DOF1	Danube main channel, 1833.0 river km	Dunasziget	N47 56 11.2 E17 24 32.5	RR, LIV	Szigetköz, Öreg-Duna
DOF2	Danube main channel, 1837.0 river km	Dunasziget	N47 57 45.3 E17 22 12.1	RR, LIV	Szigetköz, Öreg-Duna
DOM1	Ráckevei-(Soroksári-)Duna, 9.5 river km	Szigetbece	N47 05 46.2 E18 59 42.6	RR, SMV, LIV	Ráckevei-(Soroksári-)Duna
DOM2	Ráckevei-(Soroksári-)Duna, 10.5 river km, I.	Dömsöd	N47 05 42.1 E18 59 49.4	EMV, SMV, FLV	Ráckevei-(Soroksári-)Duna
DOM3	Dömsödi-Holt-Duna I.	Dömsöd	N47 05 42.3 E19 00 07.3	EMV, SMV, FLV	Ráckevei-(Soroksári-)Duna
DOM4	Dömsödi-Holt-Duna II.	Dömsöd	N47 05 49.2 E19 00 12.8	EMV, SMV, FLV	Ráckevei-(Soroksári-)Duna
DOM5	Ráckevei-(Soroksári-)Duna, 10.5 river km, II.	Szigetbece	N47 05 52.9 E18 59 45.9	EMV, SMV, FLV	Ráckevei-(Soroksári-)Duna
DRE2	Danube main channel, 1825.5 river km	Dunaremete	N47 52 49.2 E17 27 50.0	RR	Szigetköz, Öreg-Duna
DRE3	Seepage water canal at Lipót, Sorjási bukó	Dunaremete	N47 52 44.9 E17 27 49.7	RR	Szigetköz, aaf
DRE4	Catch drain at Lipót, NE from the Lipóti morotva	Lipót	N47 52 36.4 E17 28 07.9	SMV, LIV	Szigetköz, protected area
DRE5	Dunaremetei-ágrendszer, Alsó-szigeti-ág	Dunaremete	N47 52 52.4 E17 26 55.8	RR	Szigetköz, aaf
DSB1	Gravel-pit pond at Dunaszeg	Dunaszeg	N47 46 03.7 E17 33 09.8	SA-GR, SMV	Szigetköz, protected area
DSB2	Water filled hole	Dunaszeg	N47 46 02.6 E17 33 08.5	SA-GR, SMV	Szigetköz, protected area
DSG1	Mosoni-Duna, 33.0 river km	Dunaszeg	N47 45 36.6 E17 32 36.0	SA-GR, EMV, SMV	Mosoni-Danube
DSM1	Dunaszegi morotva I., reed belt	Dunaszeg	N47 46 21.9 E17 33 30.7	EMV	Szigetköz, protected area
DSM2	Dunaszegi morotva II., reed belt	Dunaszeg	N47 46 21.9 E17 33 30.7	EMV	Szigetköz, protected area
DSM3	Dunaszegi morotva III., W side	Dunaszeg	N47 46 17.0 E17 33 06.0	EMV	Szigetköz, protected area
DSZ1	Danube main channel, 1458.5 river km	Dunaszekcső	N46 04 49.2 E18 45 37.7	GR	Danube main channel
DUF0	Danube main channel, 1839.0 river km, groin, head-water	Dunasziget	N47 58 25.9 E17 21 29.6	SA-GR-ST	Szigetköz, Öreg-Duna
DUF1	Danube main channel, 1835.0 river km, groin, tail-water	Dunasziget	N47 57 02.9 E17 23 40.3	MU, LIV	Szigetköz, Öreg-Duna
DUF2	Danube main channel, 1835.0 river km, groin, head-water	Dunasziget	N47 57 04.0 E17 23 37.9	SA-GR-ST	Szigetköz, Öreg-Duna
DUF3	Danube main channel, 1832.5 river km	Dunasziget	N47 55 56.5 E17 24 32.9	SA-GR-ST, LIV	Szigetköz, Öreg-Duna

Code	Sampling site	Locality	Position (lat/lon)	Microhabitat	Water system and/or landscape
DUF4	Danube main channel, 1827.0 river km	Kisbodak	N47 53 45.1 E17 26 44.3	RR	Szigetköz, Öreg-Duna
DUF5	Danube main channel, 1827.5 river km	Kisbodak	N47 53 46.6 E17 26 37.3	SA-MU, EMV, SMV	Szigetköz, aaf
DUF6	Temporal pond at the lower mouth of the Bodaai mellékág	Kisbodak	N47 53 43.4 E17 26 42.3	SA-MU, EMV, SMV	Szigetköz, aaf
DUF7	Danube main channel, 1831.0 river km	Dunasziget	N47 55 20.1 E17 25 42.4	GR-ST	Szigetköz, Öreg-Duna
DUF9	Danube main channel, 1839.0 river km, groin, tail-water	Dunasziget	N47 58 23.9 E17 21 31.8	GR, LIV	Szigetköz, Öreg-Duna
DUH1	Ráckevei-(Soroksári-)Duna, 44.5 river km	Dunaharaszti	N47 21 35.7 E19 04 48.1	MU, DET	Ráckevei-(Soroksári-)Duna
DUH2	Ráckevei-(Soroksári-)Duna, 46.3 river km, Czuczor-sziget I.	Szigetszentmiklós	N47 22 23.4 E19 05 26.4	EMV, SMV	Ráckevei-(Soroksári-)Duna
DUH3	Ráckevei-(Soroksári-)Duna, 46.3 river km, Czuczor-sziget II.	Szigetszentmiklós	N47 22 21.7 E19 05 24.3	SMV	Ráckevei-(Soroksári-)Duna
DUH4	Ráckevei-(Soroksári-)Duna, 45.4 river km I.	Szigetszentmiklós	N47 22 00.0 E19 05 12.0	SMV, FLV	Ráckevei-(Soroksári-)Duna
DUH5	Ráckevei-(Soroksári-)Duna, 45.4 river km II.	Szigetszentmiklós	N47 21 58.2 E19 05 13.2	TRO	Ráckevei-(Soroksári-)Duna
DUH6	Ráckevei-(Soroksári-)Duna, 44.0 river km I.	Szigetszentmiklós	N47 21 26.4 E19 04 28.6	EMV, SMV	Ráckevei-(Soroksári-)Duna
DUH7	Ráckevei-(Soroksári-)Duna, 44.0 river km II.	Szigetszentmiklós	N47 21 27.0 E19 04 31.0	EMV, SMV	Ráckevei-(Soroksári-)Duna
DUJ1	Danube main channel, 1581.0 river km	Dunaújváros	N46 58 58.2 E18 56 49.5	GR-ST	Danube main channel
DUJ2	Danube main channel, 1580.5 river km	Dunaújváros	N46 58 44.6 E18 56 49.5	GR-ST	Danube main channel
ERC1	Danube main channel, 1614.0 river km	Ercsi	N47 14 55.1 E18 54 39.0	GR-LO-ST	Danube main channel
ERM1	Erebei-mellékág	Nagyszenjános	N47 44 09.6 E17 53 33.5	EMV, SMV	Danube main channel
ERM2	Danube main channel, 1785.1 river km	Ács	N47 44 22.0 E17 54 23.3	SA-CL-GR	Danube main channel
ERS1	Danube main channel, 1487.5 river km	Érsekcsanád	N46 15 01.4 E18 54 59.5	RR	Danube main channel
ERS2	Danube main channel, 1485.3 river km	Érsekcsanád	N46 14 37.8 E18 54 37.3	SA	Danube main channel
ERT1	Erdei-tó, N side	Hercegszántó	N45 56 14.4 E18 52 45.6	EMV, SMV, FLV	Béda-Karapancsa LPA
ERT2	Erdei-tó, NW side	Hercegszántó	N45 56 14.4 E18 52 42.0	EMV, SMV, FLV	Béda-Karapancsa LPA
ESZ1	Danube main channel, 1718.9 river km	Esztergom	N47 47 36.1 E18 43 56.6	SA-GR	Danube main channel
ESZ2	Danube main channel, 1719.5 river km	Esztergom	N47 47 18.4 E18 43 47.5	MU, DET	Danube main channel
ESZ3	Danube main channel, 1719.0 river km	Esztergom	N47 47 32.0 E18 43 54.1	SA-GR	Danube main channel
FAJ1	Danube main channel, 1508.0 river km	Fajsz	N46 25 39.7 E18 54 26.2	SA-MU	Danube main channel
FEC1	Ferenc-esatoma, Deák Ferenc sluice, tail-water	Baja	N46 09 51.6 E18 56 21.6	EMV, SMV	Béda-Karapancsa LPA
FEC2	Ferenc-esatoma at Hatház	Bátmonostor	N46 06 39.8 E18 53 42.9	EMV, SMV	Béda-Karapancsa LPA

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FEK3	Ferenc-esatoma, S from the road Budzsák–Hercegszántó	Hercegszántó	N45 56 34.7 E18 53 52.8	EMV, SMV, FLV	Béda-Karapancsa LPA
FEK1	Mosoni-Duna, 102.0 river km	Moson-magyaróvár	N47 55 22.4 E17 16 58.6	SA-MU, EMV, SMV, DET	Mosoni-Danube
FEK2	Dead branch at Mosoni-Duna 102.0 river km	Feketeerdő	N47 55 26.0 E17 16 56.9	SA-GR, SMV	Mosoni-Danube
FEK3	Mosoni-Duna, 102.2 river km	Moson-magyaróvár	N47 55 21.7 E17 16 56.1	EMV, SMV	Mosoni-Danube
FEK4	Mosoni-Duna, 109.5 river km	Bezenye	N47 56 41.8 E17 16 54.8	EMV, SMV	Mosoni-Danube
FGK1	Danube main channel, 1670.7 river km	Göd	N47 42 11.5 E19 07 43.5	RR	Danube main channel
FGK2	Danube main channel, 1670.,0 river km	Göd	N47 41 48.9 E19 07 45.0	RR	Danube main channel
FOM1	Fogarasi szigeti mellékág	Észtergom	N47 48 53.6 E18 48 03.7	MU	Danube main channel
FOT1	Forgó tó I.	Ócsény	N46 19 16.5 E18 54 09.3	EMV, SMV, FLV	Gemenc LPA
FOT2	Forgó tó II.	Ócsény	N46 19 15.8 E18 54 08.5	SMV, FLV	Gemenc LPA
FOT3	Forgó tó III.	Ócsény	N46 19 14.3 E18 54 10.3	SMV, FLV	Gemenc LPA
FOT4	Forgó tó IV.	Ócsény	N46 19 13.8 E18 54 09.0	SMV, FLV	Gemenc LPA
FOT5	Temporary puddle in wheel track W from Forgó tó	Ócsény	N46 19 12.7 E18 54 00.0	MU	Gemenc LPA
FOT6	Forgó tó VI.	Ócsény	N46 19 01.5 E18 54 07.3	SMV, FLV	Gemenc LPA
FOT7	Forgó tó VII.	Ócsény	N46 19 03.8 E18 54 04.3	SMV, FLV	Gemenc LPA
FOT8	Forgó tó VIII.	Ócsény	N46 19 04.9 E18 54 17.4	SMV, FLV	Gemenc LPA
FUZ1	Füzes S side Nagybaracskanál I.	Nagybaracska	N46 01 54.1 E18 53 30.1	EMV, SMV, FLV	Béda-Karapancsa LPA
FUZ2	Füzes S side Nagybaracskanál II.	Nagybaracska	N46 02 00.3 E18 52 55.0	EMV, SMV, FLV	Béda-Karapancsa LPA
GER1	Danube main channel, 1516.0 river km, small inlet	Gerjen	N46 29 57.4 E18 54 22.2	SA-GR	Danube main channel
GER2	Danube main channel, 1516.2 river km, pier, head-water	Gerjen	N46 29 57.3 E18 54 26.2	RR	Danube main channel
GOD0	Göd, Hungarian Danube Research Station	Göd	N47 40 57.0 E19 07 45.0	-	
GOD1	Danube main channel, 1667.8 river km	Göd	N47 40 40.3 E19 07 29.2	SA-GR	Danube main channel
GOD2	Danube main channel, 1668.2 river km	Göd	N47 40 59.1 E19 07 32.6	SA	Danube main channel
GOD3	Danube main channel, 1669.2 river km, groin, tail-water	Göd	N47 41 14.4 E19 07 33.4	SA-MU	Danube main channel
GOD4	Danube main channel, 1669.2 river km, groin, head-water	Göd	N47 41 15.3 E19 07 33.5	SA-MU	Danube main channel
GOD5	Danube main channel, 1669.5 river km, groin, tail-water	Göd	N47 41 23.9 E19 07 37.0	SA-MU	Danube main channel

Code	Sampling site	Locality	Position (lat/lon)	Microhabitat	Water system and/or landscape
GOD6	Danube main channel, 1669.5 river km, groin, head-water	Göd	N47 41 25.0 E19 07 37.7	SA-MU	Danube main channel
GOD7	Danube main channel, 1669.8 river km	Göd	N47 41 34.6 E19 07 41.4	SA-GR	Danube main channel
GOD8	Danube main channel, 1669.9 river km	Göd	N47 41 37.4 E19 07 43.8	SA-GR	Danube main channel
GOM1	Gödi-mellékág, left side, at upper end of Gödi-sziget	Göd	N47 41 33.8 E19 07 46.9	SA-MU	Danube main channel
GOM2	Gödi-mellékág, left side I.	Göd	N47 41 28.7 E19 07 45.8	SA-MU	Danube main channel
GOM3	Gödi-mellékág, right side, weir, tail-water	Göd	N47 41 22.1 E19 07 41.8	SA-MU	Danube main channel
GOM4	Gödi-mellékág, left side II.	Göd	N47 41 06.5 E19 07 40.2	SA-GR	Danube main channel
GOM5	Gödi-mellékág, right side, at lower end of Gödi-sziget	Göd	N47 41 02.9 E19 07 38.4	SA	Danube main channel
GOM6	Gödi-mellékág, lower mouth, right side	Göd	N47 40 58.4 E19 07 35.6	SA-MU	Danube main channel
GONI	Danube main channel, 1791.5 river km	Gönyű	N47 44 19.5 E17 49 30.8	GR-ST	Danube main channel
GORI	Tejfalui-ág, Görgetegi-bukó, head-water	Dunasziget	N47 58 40.0 E17 20 59.2	EMV, SMV	Szigetköz, aaf
GOR2	Tejfalui-ág, Görgetegi-bukó, tail-water I.	Dunasziget	N47 58 36.8 E17 21 02.9	SMV	Szigetköz, aaf
GOR3	Tejfalui-ág, Görgetegi-bukó, tail-water II.	Dunasziget	N47 58 38.2 E17 21 04.9	SMV	Szigetköz, aaf
GOS1	Ásványi-ágrendszer, Gombócosi-sziget	Lipót	N47 51 21.3 E17 29 39.4	SA-MU, DET	Szigetköz, aaf
GRD1	Grébec-Duna	Decs	N46 17 13.7 E18 52 52.4	EMV, SMV	Gemenc LPA
GUB1	Ráckevei-(Soroksári)-Duna, 54.0 river km	Budapest XXI.	N47 26 09.8 E19 05 16.8	SA-GR	Ráckevei-(Soroksári-)Duna
GYB1	Mosoni-Duna, 10.5 river km	Győr	N47 43 35.9 E17 40 51.3	GR-ST	Mosoni-Danube
GYL1	Mosoni-Duna, 32.0 river km	Győrliadamér	N47 45 01.3 E17 33 19.3	SA-GR, EMV, SMV	Mosoni-Danube
GYO1	Mosoni-Duna, 14.5 river km	Győr	N47 41 32.6 E17 38 14.1	GR-ST	Mosoni-Danube
GYZ1	Mosoni-Duna, 25.0 river km	Kunsziget	N47 44 17.3 E17 34 24.3	SA-GR, EMV, SMV	Mosoni-Danube
HAL0	Cikolai-ágrendszer, fish ladder I.	Dunasziget	N47 55 55.2 E17 24 30.0	ST	Szigetköz, aaf
HAL1	Cikolai-ágrendszer, fish ladder II.	Dunasziget	N47 55 52.9 E17 24 35.0	SA-GR	Szigetköz, aaf
HAL2	Cikolai-ágrendszer, fish ladder III.	Dunasziget	N47 55 51.9 E17 24 39.4	SA-GR, DET	Szigetköz, aaf
HAL4	Cikolai-ágrendszer, fish ladder IV.	Dunasziget	N47 55 52.4 E17 24 37.5	ST	Szigetköz, aaf
HAL5	Cikolai-ágrendszer, fish ladder V.	Dunasziget	N47 55 51.5 E17 24 41.4	ST	Szigetköz, aaf
HAL6	Cikolai-ágrendszer, fish ladder VI.	Dunasziget	N47 55 52.3 E17 24 42.5	ST	Szigetköz, aaf
HAMI	Mosoni-Duna, 94.0 river km	Halászi	N47 53 13.7 E17 18 58.7	MU-GR	Mosoni-Danube
HARI	Danube main channel, 1632.0 river km	Budapest XXII.	N47 23 21.7 E18 59 38.6	SA-MU, DET	Danube main channel
HEDI	Canal at W side of Hédervár	Darmózseli	N47 49 46.6 E17 26 29.1	SA-MU, EMV, SMV	Szigetköz, protected area

Code	Sampling site	Locality	Position (lat/lon)	Microhabitat	Water system and/or landscape
HEB2	Canal between Zsejkei-csatorna and Mosoni-Duna at Hédervár	Hédervár	N47 49 57.9 E17 27 53.0	SMV	Szigetköz, protected area
HLR1	Ásványi-ágrendszer, Halrekesztői zárás, head-water	Ásványráró	N47 50 56.6 E17 30 07.6	EMV, SMV	Szigetköz, aaf
HLR2	Ásványi-ágrendszer, Halrekesztői zárás, tail-water	Ásványráró	N47 50 56.4 E17 30 07.8	SA-GR-ST	Szigetköz, aaf
HRT1	Danube main channel, 1546.0 river km	Harta	N46 41 51.2 E19 00 40.3	SA-MÜ	Danube main channel
HRZ1	Hármas-zátony	Decs	N46 14 09.0 E18 51 45.0	MU, EMV	Gemenc LPA
HRZ5	Temporary puddle in wheel track W from Hármas-zátony	Decs	N46 14 07.5 E18 51 35.7	MU	Gemenc LPA
HSI1	Holt-Sió I.	Ócsény	N46 20 03.6 E18 51 40.4	EMV, SMV	Gemenc LPA
HSI2	Holt-Sió II.	Bogyiszló	N46 20 07.1 E18 51 44.5	EMV, SMV	Gemenc LPA
HTV1	Ásványi-ágrendszer, Hatvanasi-bukó	Lipót	N47 51 41.7 E17 29 24.5	EMV, SMV	Szigetköz, protected area
ILP1	Ilka-patak at Gőd	Göd	N47 41 48.7 E19 07 55.5	EMV, SMV, FLV	Danube main channel
KAC1	Kálnoki csatorna at Máriakálnok	Halászi	N47 52 24.8 E17 20 06.9	SMV	Szigetköz, protected area
KAD1	Kadia-Duna, W from the road Homorúd-Budzsák	Hercegszántó	N45 57 45.9 E18 51 03.4	EMV, SMV	Béda-Karapancsa LPA
KAD2	Kadia-Duna, E from the road Homorúd-Budzsák	Hercegszántó	N45 57 46.0 E18 51 04.0	EMV, SMV	Béda-Karapancsa LPA
KED1	Kertülő-Duna	Pörboly	N46 12 24.8 E18 49 16.8	EMV, SMV, LIV	Gemenc LPA
KFC1	Karapancsai-főcsatorna at Sárhát	Mohács	N46 00 50.0 E18 46 54.9	EMV, SMV, FLV	Béda-Karapancsa LPA
KFC2	Canal between Karapancsai-főcsatorna and Riha-tó	Mohács	N46 00 24.5 E18 46 33.4	EMV, SMV	Béda-Karapancsa LPA
KFC3	Karapancsai-főcsatorna, E side of Homorúd	Homorúd	N45 58 59.3 E18 48 33.3	EMV, SMV	Béda-Karapancsa LPA
KFC4	Karapancsai-főcsatorna, W side of Budzsák	Hercegszántó	N45 56 31.4 E18 51 41.7	EMV, SMV	Béda-Karapancsa LPA
KFC5	Karapancsai-főcsatorna at Budzsák	Hercegszántó	N45 56 34.0 E18 52 33.9	SMV, FLV	Béda-Karapancsa LPA
KIB1	Mosoni-Duna, 12.3 river km	Győr	N47 42 05.1 E17 39 32.3	SA-GR, SMV	Mosoni-Danube
KIM1	Danube main channel, 1688.0 river km I.	Kisoroszi	N47 49 03.1 E19 01 29.4	MU, DET	Danube main channel
KIM2	Danube main channel, 1688.0 river km II.	Kisoroszi	N47 49 04.6 E19 01 27.1	SA-GR	Danube main channel
KIM3	Danube main channel, 1689.4 river km	Kismaros	N47 49 18.1 E19 00 38.0	MU, DET	Danube main channel
KIO2	Oxbow lake at the main channel at river km 1687.5	Kisoroszi	N47 48 54.7 E19 01 47.3	SMV	Danube main channel
KKL1	Ráckevei-(Soroksári)-Duna, 23.0 river km, W side of Angyal-sziget	Ráckeve	N47 12 07.2 E18 57 16.8	EMV, SMV	Ráckevei-(Soroksári)-Duna
KML1	Mosoni-Duna, 70.5 river km	Kimle	N47 50 03.6 E17 22 37.1	SA-GR, EMV, SMV	Mosoni-Danube
KML2	Mosoni-Duna, 71.2 river km	Kimle	N47 50 35.4 E17 22 07.8	SA-GR, EMV, SMV	Mosoni-Danube

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KML3	Water filled hole at Mosoni-Duna river km 71.2	Kimle	N47 50 36.7 E17 22 11.3	SMV, FLV	Mosoni-Danube
KML4	Mosoni-Duna, 62.5 river km	Kimle	N47 49 33.4 E17 22 15.4	SA-GR, EMV, SMV	Mosoni-Danube
KOCI	Kölkedi-főcsatorna	Kölked	N45 57 16.8 E18 43 12.0	SMV	Béda-Karapancsa LPA
KOM1	Danube main channel, 1767.5 river km	Komárom	N47 44 58.3 E18 07 16.8	RR	Danube main channel
KOM2	Danube main channel, 1768.8 river km	Komárom	N47 45 02.8 E18 06 25.1	GR	Danube main channel
KOPI	Danube main channel, 1776.0 river km	Komárom	N47 44 59.4 E18 01 11.3	GR	Danube main channel
KPDI	Káposztás-Duna W side	Baja	N46 12 43.3 E18 53 20.7	EMV, SMV, FLV	Gemenc LPA
KPD2	Káposztás-Duna S side	Baja	N46 12 41.2 E18 53 23.3	SMV, FLV	Gemenc LPA
KPD3	Káposztás-Duna, N side	Baja	N46 12 53.2 E18 53 21.2	SMV, FLV	Gemenc LPA
KRC1	Keresztfoki-csatorna at E side of Sárhát, above the bridge	Mohács	N46 01 24.2 E18 48 34.4	EMV, SMV, FLV	Béda-Karapancsa LPA
KRC2	Keresztfoki-csatorna at E side of Sárhát, under the bridge	Mohács	N46 01 21.7 E18 48 34.2	EMV, SMV, FLV	Béda-Karapancsa LPA
KRC3	Keresztfoki-csatorna SE from Dunafalva	Dunafalva	N46 03 54.5 E18 48 57.7	EMV, SMV, FLV	Béda-Karapancsa LPA
KTOI	Kis-Tojta	Kölked	N45 57 18.6 E18 43 55.2	EMV, SMV	Béda-Karapancsa LPA
LAG1	Danube main channel, 1641.8 river km	Budapest XI.	N47 27 32.5 E19 03 30.3	SA-MU	Danube main channel
LAG2	Lágymányosi-öböl	Budapest XI.	N47 27 37.8 E19 03 31.9	SA-MU	Danube main channel
LIP0	Lipóti-morotva, inlet of catch drain	Lipót	N47 52 05.6 E17 27 08.6	EMV, SMV	Szigetköz, protected area
LIP1	Lipóti morotva, catch drain, on W side of the lake	Lipót	N47 51 56.9 E17 27 13.4	EMV, SMV	Szigetköz, protected area
LIP2	Lipóti morotva, middle part, open water	Lipót	N47 51 51.6 E17 27 29.0	EMV, SMV, FLV	Szigetköz, protected area
LIP3	Lipóti morotva, SW side	Lipót	N47 51 51.4 E17 27 18.1	EMV, SMV, FLV	Szigetköz, protected area
LIP4	Lipóti morotva, SE side	Lipót	N47 51 52.1 E17 27 55.8	EMV, SMV, FLV	Szigetköz, protected area
LIP5	Lipóti morotva, catch drain, on S side of the lake	Lipót	N47 51 49.8 E17 27 45.8	EMV, SMV	Szigetköz, protected area
LIP6	Hédervári-csatorna at Lipót	Lipót	N47 51 42.5 E17 27 27.2	ST, EMV, SMV	Szigetköz, protected area
LKP1	Mosoni-Duna, 55.5 river km	Mecser	N47 47 54.6 E17 25 40.7	SA-GR, EMV, SMV	Mosoni-Danube
LUP1	Szentendrei-Duna, 3.5 river km	Budapest III.	N47 35 37.2 E19 04 13.1	GR	Szentendrei-Duna
LUP2	Szentendrei-Duna, 4.3 river km	Szentendre	N47 37 58.1 E19 05 07.4	SA-MU	Szentendrei-Duna
LUP3	Szentendrei-Duna, 4.8 river km	Szentendre	N47 38 01.5 E19 05 05.2	CL	Szentendrei-Duna
MADI	Danube main channel, 1542.5 river km	Madocsa	N46 41 35.9 E18 59 57.6	SA-GR	Danube main channel
MAK1	Ráckevei-(Soroksári-)Duna, 6.0 river km, right side	Makád	N47 04 33.0 E18 57 40.8	SA-GR, EMV, SMV	Ráckevei-(Soroksári-)Duna

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MAK2	Ráckevei-(Soroksári-)Duna, 6.0 river km, left side	Dömsöd	N47 04.25.2 E18 57.43.2	EMV	Ráckevei-(Soroksári-)Duna
MAT1	Malom-telelő-tó	Decs	N46 14.36.0 E18 51.36.0	MU, EMV	Gemenc LPA
MAT2	Canal between Malom-telelő-tó and Lassi-tó	Decs	N46 14.29.5 E18 51.29.5	MU, EMV	Gemenc LPA
MEDI	Mosoni-Duna, 48.2 river km	Mecser	N47 47.54.9 E17 28.49.2	SA-GR, SMV	Mosoni-Danube
MEDI	Danube main channel, 1806.0 river km	Győrzámoly	N47 47.27.9 E17 39.10.7	RR	Szigetköz, Dmc
MED2	Danube main channel, 1805.0 river km	Győrzámoly	N47 47.18.7 E17 39.29.4	RR	Szigetköz, Dmc
MKL1	Mosoni-Duna, 83.0 river km	Máriakálnok	N47 51.20.5 E17 18.38.5	SA-GR, EMV, SMV	Mosoni-Danube
MMO1	Mosoni-Duna, 88.0 river km	Moson-magyaróvár	N47 51.30.3 E17 17.14.8	EMV, SMV	Mosoni-Danube
MMO2	Mosoni-Duna, 89.5 river km	Moson-magyaróvár	N47 52.02.4 E17 17.06.3	EMV, SMV	Mosoni-Danube
MOD1	Moecos-Duna	Mohács	N45 57.44.9 E18 46.45.5	EMV, SMV	Béda-Karapancsa LPA
MOD2	Temporary puddle in wheel track E from Moecos-Duna	Mohács	N45 57.53.7 E18 46.57.4	MU	Béda-Karapancsa LPA
MOH1	Danube main channel, 1446.5 river km	Mohács	N45 59.21.1 E18 41.53.1	MU	Danube main channel
NAC1	Cikolai-ágrendszer, Nagy-Ciglés	Dunasziget	N47 56.57.7 E17 23.30.5	SA-MU, SMV, LIV	Szigetköz, aaf
NAG1	Danube main channel, 1694.5 river km	Nagymaros	N47 47.27.0 E18 57.46.1	GR	Danube main channel
NAG2	Danube main channel, 1694.3 river km	Nagymaros	N47 47.30.5 E18 57.47.4	SA	Danube main channel
NBA1	Danube main channel, 1802.5 river km	Nagybajcs	N47 45.56.9 E17 41.46.8	SA-GR-ST	Szigetköz, Dmc
NBA2	Danube main channel, 1802.0 river km	Nagybajcs	N47 45.52.9 E17 41.50.8	SA-GR	Szigetköz, Dmc
NBA3	Danube main channel, 1801.5 river km	Nagybajcs	N47 45.46.7 E17 41.57.1	RR	Szigetköz, Dmc
NGY1	Nagy-Gyékényes	Baja	N46 13.30.0 E18 51.04.2	EMV, SMV, LIV	Gemenc LPA
NMM1	Neszmény-Mocsi-mellékág I.	Neszmény	N47 44.15.4 E18 21.33.3	EMV, SMV	Danube main channel
NMM2	Neszmény-Mocsi-mellékág II.	Neszmény	N47 44.19.2 E18 21.15.7	EMV, SMV	Danube main channel
NOCI	Nováki csatorna at Püski	Püski	N47 53.11.7 E17 23.37.6	EMV, SMV	Szigetköz, protected area
NOC2	Nováki csatorna at Arak	Damózseli	N47 52.00.8 E17 23.08.4	SA-GR, EMV, SMV	Szigetköz, protected area
NOC3	Nováki csatorna near Novákpuszta	Damózseli	N47 50.15.8 E17 25.39.4	EMV, SMV	Szigetköz, protected area
NOC4	Nováki csatorna at Novákpuszta	Kimle	N47 49.32.0 E17 24.42.8	EMV, SMV	Szigetköz, protected area
NT01	Nagy-Tojta	Kölked	N45 57.17.9 E18 43.58.3	EMV, SMV	Béda-Karapancsa LPA
NYD1	Nyéki-Holt-Duna NW side I.	Báta	N46 11.30.7 E18 50.44.8	EMV, SMV, FLV	Gemenc LPA
NYD2	Nyéki-Holt-Duna NW side II.	Báta	N46 11.32.4 E18 50.52.2	EMV, SMV, FLV	Gemenc LPA

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NYD3	Nyéki-Holt-Duna N part, open water I.	Báta	N46 11 27.6 E18 50 50.6	SMV, FLV	Gemenc LPA
NYD4	Nyéki-Holt-Duna N part, open water II.	Báta	N46 11 29.0 E18 50 53.0	SMV, FLV	Gemenc LPA
NYU1	Danube main channel, 1734.5 river km	Nyergessíffalu	N47 45 45.7 E18 32 23.5	SA-GR, RR	Danube main channel
OBS1	Danube main channel, 1654.2 river km	Budapest III.	N47 33 39.1 E19 03 37.5	SA-MU-GR	Danube main channel
OBS2	Danube main channel, 1654.0 river km	Budapest III.	N47 33 34.5 E19 03 41.6	SA-GR	Danube main channel
OBS3	Óbudai-mellékág	Budapest III.	N47 33 05.6 E19 02 56.0	MU	Danube main channel
PAF1	Pap-fok	Decs	N46 17 13.1 E18 52 20.4	SMV, FLV	Gemenc LPA
PAK1	Danube main channel, 1533.0 river km	Paks	N46 38 07.9 E18 52 43.5	GR, RR, DET	Danube main channel
PAK2	Inlet at the main channel at river km 1533.0	Paks	N46 38 06.3 E18 52 38.1	MU	Danube main channel
PAK3	Danube main channel, 1530.4 river km	Paks	N46 37 08.5 E18 51 38.1	SA-CL	Danube main channel
PAK4	Danube main channel, 1526.0 river km	Paks	N46 34 56.6 E18 52 22.1	SA-MU-GR	Danube main channel
PIL1	Danube main channel, 1707.0 river km	Pilismarót	N47 48 36.9 E18 51 38.5	SA-GR	Danube main channel
RAC1	Ráckevei-(Soroksári)-Duna, 19.0 river km	Ráckeve	N47 09 42.3 E18 56 56.2	SA-MU	Ráckevei-(Soroksári-)Duna
RAC2	Ráckevei-(Soroksári)-Duna, 19.2 river km I.	Ráckeve	N47 09 41.4 E18 56 57.6	EMV, SMV	Ráckevei-(Soroksári-)Duna
RAC3	Ráckevei-(Soroksári)-Duna, 19.2 river km II.	Ráckeve	N47 09 41.2 E18 56 58.1	EMV, SMV	Ráckevei-(Soroksári-)Duna
RAC4	Ráckevei-(Soroksári)-Duna, 18.4 river km, Senki-sziget E side	Ráckeve	N47 09 12.0 E18 57 03.6	TRO, LIV	Ráckevei-(Soroksári-)Duna
RAJ1	Mosoni-Duna upper sluice, head-water	Rajka	N48 00 46.9 E17 13 00.1	EMV, SMV	Mosoni-Danube
RAJ2	Mosoni-Duna, 120.8 river km I.	Rajka	N47 59 25.0 E17 14 17.4	SA-GR, EMV, SMV	Mosoni-Danube
RAJ3	Mosoni-Duna, 120.9 river km	Rajka	N47 59 22.2 E17 14 20.9	EMV, SMV	Mosoni-Danube
RAJ4	Mosoni-Duna, 120.8 river km II.	Rajka	N47 59 25.7 E17 14 16.9	RR	Mosoni-Danube
RAJ5	Mosoni-Duna upper mouth from seepage water canal	Rajka	N47 59 58.4 E17 14 06.4	EMV, SMV	Mosoni-Danube
RCA1	Danube main channel, 1588.5 river km	Rácalmás	N47 02 34.7 E18 56 51.1	SA-GR	Danube main channel
REZ1	Danube main channel, 1488.0 river km, upper mouth of Rezáti-Duna	Decs	N46 15 40.5 E18 54 28.4	SA	Danube main channel
REZ2	Rezáti-Duna II.	Decs	N46 15 52.5 E18 53 02.1	SA-MU	Gemenc LPA
REZ4	Rezáti-Duna IV.	Decs	N46 15 47.4 E18 51 45.5	EMV, SMV	Gemenc LPA
REZ6	Rezáti-Duna VI.	Decs	N46 13 59.7 E18 52 03.9	SA-MU	Gemenc LPA
REZ8	Rezáti-Duna VIII.	Baja	N46 14 14.3 E18 53 10.3	SA-MU	Gemenc LPA
RIH1	Riha-tó W side	Homorúd	N46 00 24.8 E18 44 33.5	EMV	Béda-Karapancsa LPA

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RH2	Riha-tó E side	Homorúd	N46 00 23.9 E18 46 28.2	EMV, SMV	Béda-Karapancsa LPA
RH3	Small pond at E side of Riha-tó	Homorúd	N46 00 24.9 E18 46 31.8	EMV, SMV, DET	Béda-Karapancsa LPA
SAF1	Sárkány-fok S from road No. 55	Báta	N46 11 43.9 E18 51 46.1	EMV, SMV	Gemenc LPA
SCH0	W end of canal between Schisler-holtág and Csákányi-Duna	Dunasziget	N47 57 08.4 E17 21 40.2	MU, EMV, SMV	Szigetköz, aaf
SCH1	Schisler-holtág W side I.	Dunasziget	N47 57 12.1 E17 21 21.4	EMV, SMV	Szigetköz, aaf
SCH2	Schisler-holtág middle, open water	Dunasziget	N47 57 10.5 E17 21 30.5	SMV	Szigetköz, aaf
SCH3	Schisler-holtág E side I.	Dunasziget	N47 57 07.9 E17 21 39.6	SMV	Szigetköz, aaf
SCH4	E end of canal between Schisler-holtág and Csákányi-Duna	Dunasziget	N47 57 07.5 E17 21 42.1	EMV, SMV	Szigetköz, aaf
SCH5	Schisler-holtág E side II.	Dunasziget	N47 57 08.4 E17 21 38.4	EMV	Szigetköz, aaf
SCH6	Schisler-holtág E side III.	Dunasziget	N47 57 07.8 E17 21 38.4	SMV	Szigetköz, aaf
SCH7	Schisler-holtág W side II.	Dunasziget	N47 57 12.4 E17 21 22.8	SMV	Szigetköz, aaf
SCH8	Schisler-holtág W side III.	Dunasziget	N47 57 11.9 E17 21 21.8	SMV	Szigetköz, aaf
SCS1	Ráckevei-(Soroksári)-Duna, 31.0 river km, E side of Csupi-sziget	Szigetcsép	N47 15 25.2 E18 58 49.8	EMV, SMV	Ráckevei-(Soroksári-)Duna
SIO1	Sió, flood gate, tail-water	Bogyiszló	N46 20 27.5 E18 51 46.4	SA-GR, SMV	Gemenc LPA
SMA1	Ráckevei-(Soroksári)-Duna, 25.2 river km I.	Szigetszentmárton	N47 12 55.2 E18 57 40.2	EMV, SMV	Ráckevei-(Soroksári-)Duna
SMA2	Ráckevei-(Soroksári)-Duna, 25.2 river km II.	Szigetszentmárton	N47 12 54.4 E18 57 39.4	SMV	Ráckevei-(Soroksári-)Duna
SMA3	Ráckevei-(Soroksári)-Duna, 26.5 river km	Szigetszentmárton	N47 13 27.0 E18 58 01.9	EMV, SMV	Ráckevei-(Soroksári-)Duna
SMA4	Ráckevei-(Soroksári)-Duna, 27.0 river km	Szigetszentmárton	N47 13 41.3 E18 57 54.9	EMV, SMV	Ráckevei-(Soroksári-)Duna
SMA5	Ráckevei-(Soroksári)-Duna, 28.0 river km, Kis-sziget I.	Áporka	N47 14 09.5 E18 58 29.5	SMV	Ráckevei-(Soroksári-)Duna
SMA6	Ráckevei-(Soroksári)-Duna, 28.0 river km, Kis-sziget II.	Áporka	N47 14 10.6 E18 58 30.0	SMV	Ráckevei-(Soroksári-)Duna
SMI1	Ráckevei-(Soroksári)-Duna, 42.0 river km I.	Szigetszentmiklós	N47 20 43.2 E19 03 27.6	FLV	Ráckevei-(Soroksári-)Duna
SMI2	Ráckevei-(Soroksári)-Duna, 42.0 river km II.	Szigetszentmiklós	N47 20 43.1 E19 03 27.0	SMV	Ráckevei-(Soroksári-)Duna

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SMI3	Ráckevei-(Soroksári)-Duna, 25.2 river km I.	Taksony	N47 19 53.4 E19 02 52.2	EMV	Ráckevei-(Soroksári-)Duna
SOR1	Ráckevei-(Soroksári)-Duna, Molnár-szigeti-mellékág I.	Budapest XXIII.	N47 24 20.4 E19 06 31.8	EMV, SMV, SA-GR, DET	Ráckevei-(Soroksári-)Duna
SOR2	Ráckevei-(Soroksári)-Duna, Molnár-szigeti-mellékág II.	Budapest XXIII.	N47 23 53.4 E19 06 39.0	EMV, SMV, SA-GR, DET	Ráckevei-(Soroksári-)Duna
SOR3	Ráckevei-(Soroksári)-Duna, 52.7 river km	Budapest XXIII	N47 25 37.1 E19 05 32.9	SA-GR, DET	Ráckevei-(Soroksári-)Duna
SOR4	Ráckevei-(Soroksári)-Duna, 51.0 river km	Budapest XXIII	N47 24 43.6 E19 06 04.5	SA-GR, DET	Ráckevei-(Soroksári-)Duna
SOR5	Ráckevei-(Soroksári)-Duna, 50.2 river km.	Budapest XXIII	N47 24 27.0 E19 06 11.7	SA-GR, DET	Ráckevei-(Soroksári-)Duna
SUF1	Sulymos-fok, E side, I.	Baja	N46 11 53.6 E18 52 53.6	EMV	Gemenc LPA
SUF2	Sulymos-fok, E side, II.	Baja	N46 11 53.9 E18 52 58.2	EMV	Gemenc LPA
SUF3	"Ditch along the W side of the road towards "Csertai" forester's lodge	Baja	N46 11 55.2 E18 53 01.8	LIV	Gemenc LPA
SUF4	"Temporal backwater from flood along the E side of the road towards "Csertai" forester's lodge	Baja	N46 11 55.0 E18 53 06.0	FLO-FOR	Gemenc LPA
SUG1	Sugovica (Szeremlei Holt-Duna), E side of Petőfi-sziget	Baja	N46 10 29.8 E18 56 54.1	MU, EMV, SMV	Béda-Karapancsa LPA
SUG2	Sugovica (Szeremlei Holt-Duna), I.	Szeremle	N46 09 29.5 E18 55 07.4	SMV, FLV	Gemenc LPA
SUG3	Sugovica (Szeremlei Holt-Duna), lower mouth above the dam, I.	Szeremle	N46 08 30.8 E18 50 33.3	SMV, FLV	Gemenc LPA
SUG4	Sugovica (Szeremlei Holt-Duna), lower mouth above the dam, II.	Baja	N46 08 30.6 E18 50 35.4	SMV	Gemenc LPA
SUG5	Sugovica (Szeremlei Holt-Duna), lower mouth above the dam, III.	Szeremle	N46 08 29.8 E18 50 36.3	SMV	Gemenc LPA
SUG6	Sugovica (Szeremlei Holt-Duna), at Szeremle	Szeremle	N46 08 44.6 E18 52 39.6	SMV	Gemenc LPA
SUG7	Sugovica (Szeremlei Holt-Duna), N end	Szeremle	N46 09 52.2 E18 56 07.5	SMV	Gemenc LPA
SUR1	Danube main channel, 1670.5 river km	Pócsmegyer	N47 42 11.6 E19 07 24.1	MU	Danube main channel
SUR2	Danube main channel, 1670.5 river km	Pócsmegyer	N47 42 14.1 E19 07 26.8	RR	Danube main channel
SUT1	Danube main channel, 1744.0 river km	Süttö	N47 45 12.0 E18 25 42.6	GR-ST	Danube main channel
SUT2	Danube main channel, 1744.5 river km	Süttö	N47 45 08.8 E18 25 34.6	GR-ST	Danube main channel
SVC1	Szavai-csatorna at the Patkányosi pump-station	Ásványráró	N47 48 15.0 E17 33 34.3	SMV	Szigetköz, protected area
SVC2	Szavai-csatorna at Kisbajes	Kisbajes	N47 44 47.5 E17 40 57.3	EMV, SMV	Szigetköz, protected area
SZB1	Ráckevei-(Soroksári)-Duna, 15.0 river km I.	Szigetbese	N47 07 33.6 E18 57 54.7	ST	Ráckevei-(Soroksári-)Duna
SZB2	Ráckevei-(Soroksári)-Duna, 15.0 river km II.	Szigetbese	N47 07 27.6 E18 57 52.2	EMV, SMV, FLV	Ráckevei-(Soroksári-)Duna

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SZB3	Ráckevei-(Soroksári)-Duna, 15.0 river km III.	Szigetbecse	N47 07 26.4 E18 57 53.4	EMV, SMV, FLV	Ráckevei-(Soroksári-)Duna
SZC1	Seepage water canal, sluice near Rajka, head-water	Rajka	N48 00 44.1 E17 12 51.0	SA, EMV, SMV, LIV	Szigetköz, protected area
SZC2	Seepage water canal, sluice near Dunakiliti, head-water	Dunakiliti	N47 58 46.7 E17 15 56.2	SMV	Szigetköz, protected area
SZC3	Seepage water canal, sluice near Dunakiliti, tail-water	Dunakiliti	N47 58 46.7 E17 16 02.7	SMV	Szigetköz, protected area
SZH1	Danube main channel, 1621.0 river km	Százhalombatta	N47 18 43.9 E18 55 45.0	GR-ST	Danube main channel
SZL1	Danube main channel, 1673.6 river km	Szódliget	N47 43 37.0 E19 07 50.0	RR	Danube main channel
SZL2	Danube main channel, 1675.7 river km	Vác	N47 44 45.2 E19 08 07.3	SA-GR	Danube main channel
SZL3	Mouth of Szód-Rákos-patak at Danube main channel river km 1673.7	Szódliget	N47 43 41.3 E19 07 55.7	SA-MU, TRO	Danube main channel
SZM1	Danube main channel, 1688.5 river km	Szigetmonostor	N47 41 12.3 E19 07 17.9	RR	Danube main channel
SZM2	Danube main channel, 1688.0 river km	Szigetmonostor	N47 40 44.3 E19 07 12.7	GR	Danube main channel
SZM3	Danube main channel, 1659.0 river km	Szigetmonostor	N47 36 12.3 E19 05 02.8	GR	Danube main channel
SZN1	Szentendrei-Duna, 9.5 river km	Szentendre	N47 39 51.4 E19 04 51.7	SA-GR	Szentendrei-Duna
SZO1	Danube main channel, 1707.0 river km	Szob	N47 48 54.6 E18 51 46.3	SA-GR	Danube main channel
SZO2	Danube main channel, 1707.2 river km	Szob	N47 48 55.9 E18 51 37.1	RR	Danube main channel
SZU1	Danube main channel, 1612.0 river km	Szigetújfalú	N47 14 01.0 E18 54 47.1	GR	Danube main channel
TAH1	Szentendrei-Duna, 20.0 river km	Táhtótfalu	N47 45 18.7 E19 04 41.5	SA-GR	Szentendrei-Duna
TAS1	Danube main channel, 1586.0 river km	Tass	N47 01 30.1 E18 58 16.7	RR	Danube main channel
TAS2	Ráckevei-(Soroksári)-Duna, 2.0 river km	Makád	N47 02 45.6 E18 58 09.6	SA-GR, EMV, SMV	Ráckevei-(Soroksári-)Duna
TAS3	Ráckevei-(Soroksári)-Duna, 0.5 river km	Tass	N47 01 48.0 E18 58 26.3	SMV	Ráckevei-(Soroksári-)Duna
TAT1	Danube main channel, 1728.0 river km	Tát	N47 45 19.7 E18 37 33.5	GR	Danube main channel
TAT2	Körtvélyesi-mellékág	Esztergom	N47 45 39.9 E18 41 11.1	SMV, LIV	Danube main channel
TAT3	Danube main channel, 1721.5 river km I.	Esztergom	N47 46 25.7 E18 42 20.9	GR	Danube main channel
TAT4	Danube main channel, 1721.5 river km II.	Esztergom	N47 46 25.8 E18 42 23.0	SA	Danube main channel
TAT5	Danube main channel, 1721.5 river km III.	Esztergom	N47 46 26.3 E18 42 24.9	MU	Danube main channel
TAT6	Táti-mellékág, above the mouth of Kenyérmezei-patak	Esztergom	N47 45 06.6 E18 41 15.7	MU	Danube main channel
TAT7	Táti-mellékág, under the mouth of Kenyérmezei-patak	Esztergom	N47 45 16.1 E18 41 29.4	MU	Danube main channel

Code	Sampling site	Locality	Position (lat/lon)	Microhabitat	Water system and/or landscape
TEJ1	Téjfaluszigeti-ágrendszer, Kormosi-ág	Dunasziget	N47 57 41.3 E17 21 45.1	SMV	Szigetköz, aaf
TEJ2	Téjfaluszigeti-ágrendszer, Szigeti-Duna before the Doborgazi-átvágás	Dunasziget	N47 57 42.5 E17 20 32.7	SA, EMV, SMV	Szigetköz, aaf
TEJ3	Téjfaluszigeti-ágrendszer, at main channel river km 1839.0	Dunasziget	N47 58 23.7 E17 21 25.3	SA, EMV, SMV	Szigetköz, aaf
TKD1	Small pond SW from Rezéti-Duna at railway station „Volt nyári legelő”	Baja	N46 13 12.8 E18 51 44.3	EMV, SMV	Gemenc LPA
VAC1	Danube main channel, 1680.0 river km, groin, tail-water I.	Tahitótfalu	N47 46 47.9 E19 06 55.7	MU	Danube main channel
VAC2	Danube main channel, 1680.0 river km, groin, head-water	Tahitótfalu	N47 46 50.1 E19 06 57.1	RR	Danube main channel
VAC3	Danube main channel, 1680.0 river km, groin, tail-water II.	Tahitótfalu	N47 46 47.6 E19 06 57.0	GR	Danube main channel
VAC4	Danube main channel, 1679.4 river km	Vác	N47 46 39.2 E19 07 29.2	GR-ST	Danube main channel
VAC5	Danube main channel, 1680.6 river km	Vác	N47 47 20.4 E19 06 47.4	SA-GR	Danube main channel
VAJ1	Vájas-fok, Dusnok I.	Dusnok	N46 23 07.6 E18 57 25.9	EMV, SMV	Danube main channel
VAJ2	Vájas-fok, Dusnok II.	Dusnok	N46 22 43.5 E18 57 27.6	EMV, SMV	Danube main channel
VAJ3	Vájas-fok, Dusnok III.	Dusnok	N46 21 50.7 E18 57 25.2	EMV, SMV	Danube main channel
VAJ4	Vájas-fok, Dusnok IV.	Dusnok	N46 21 42.9 E18 57 45.7	EMV, SMV	Danube main channel
VAJ5	Vájas-fok, Dusnok V.	Dusnok	N46 21 42.9 E18 57 45.4	EMV, SMV	Danube main channel
VAJ6	Vájas-fok, Dusnok VI.	Dusnok	N46 21 37.3 E18 57 44.4	EMV, SMV	Danube main channel
VAJ7	Vájas-fok at Érsekcsanád-Dunapart	Érsekcsanád	N46 15 26.4 E18 55 07.2	EMV, SMV	Danube main channel
VEDI	Vén-Duna	Baja	N46 11 46.6 E18 54 29.8	MU, DET	Gemenc LPA
VEN1	Mosoni-Duna, 1.5 river km I.	Vének	N47 44 10.1 E17 46 12.3	TRO	Mosoni-Danube
VEN2	Mosoni-Duna, 1.5 river km II.	Vének	N47 44 07.1 E17 46 13.4	GR	Mosoni-Danube
VEN3	Mosoni-Duna, 1.5 river km III.	Vének	N47 44 10.2 E17 46 11.7	MU	Mosoni-Danube
VER1	Danube main channel, 1687.5 river km	Verőce	N47 49 16.3 E19 02 12.0	SA-GR	Danube main channel
VIS1	Danube main channel, 1695.0 river km	Visegrád	N47 47 14.6 E18 58 03.7	GR-ST	Danube main channel
VPF1	Main canal of water supply system at Dunakiliti	Dunakiliti	N47 59 06.0 E17 19 26.1	SA-MU	Szigetköz, aaf
VSZ1	Szentendrei-Duna, 31.0 river km	Visegrád	N47 48 10.7 E18 59 05.2	GR-ST	Szentendrei-Duna
ZAD1	Zátonyi-Duna at Dunasziget	Dunasziget	N47 57 05.2 E17 20 40.1	EMV, SMV	Szigetköz, protected area
ZAD2	Zátonyi-Duna at Dunakiliti, sluice head-water	Dunakiliti	N47 57 54.8 E17 18 14.5	SA-GR, SMV	Szigetköz, protected area
ZAD3	Zátonyi-Duna at the NE side of Cikolasziget	Dunasziget	N47 56 28.9 E17 21 47.6	EMV, SMV	Szigetköz, protected area

Code	Sampling site	Locality	Position (lat/lon)	Microhabitat	Water system and/or landscape
ZAD4	Zátonyi-Duna at the E side of Sérfenyősziget	Dunasziget	N47 56 13.4 E17 20 51.3	EMV, SMV	Szigetköz, protected area
ZAT1	Zátonyi-Duna upper mouth from seepage water canal at Dunakiliti	Dunakiliti	N47 58 42.1 E17 16 41.7	SA-MU, EMV, SMV, DET	Szigetköz, protected area
ZAT2	Zátonyi-Duna at Dunakiliti	Dunakiliti	N47 57 54.6 E17 18 16.8	RR	Szigetköz, protected area
ZAT3	Zátonyi-Duna at Dunakiliti, sluice tail-water I.	Dunakiliti	N47 57 54.5 E17 18 17.6	TRO	Szigetköz, protected area
ZAT4	Zátonyi-Duna at Bodak I.	Dunasziget	N47 54 15.1 E17 23 17.3	SA-GR, EMV, SMV, FLV	Szigetköz, protected area
ZAT5	Zátonyi-Duna at Bodak II.	Püski	N47 54 07.8 E17 23 15.2	EMV, SMV	Szigetköz, protected area
ZAT6	Zátonyi-Duna at Bodak III.	Püski	N47 54 15.8 E17 22 59.5	EMV, SMV, FLV	Szigetköz, protected area
ZAT7	Zátonyi-Duna at Bodak VI.	Püski	N47 54 21.8 E17 23 02.2	EMV, SMV, FLV	Szigetköz, protected area
ZAT8	Zátonyi-Duna at Dunakiliti, sluice tail-water II.	Dunakiliti	N47 57 54.6 E17 18 20.1	EMV, SMV	Szigetköz, protected area
ZAT9	Zátonyi-Duna at the S side of Cikolasziget	Dunasziget	N47 55 23.6 E17 21 55.4	EMV, SMV, FLV	Szigetköz, protected area
ZSC1	Zsejkei-csatorna S from Lipót	Lipót	N47 51 02.8 E17 27 40.5	SMV, LIV	Szigetköz, protected area
ZSC2	Zsejkei-csatorna at the N side of Darnózseli	Darnózseli	N47 51 25.2 E17 25 45.2	EMV, SMV, LIV	Szigetköz, protected area

Table 2. Codes of the different microhabitats sampled

CL	clay
DET	detritus
EMV	emerged aquatic macrovegetation
FLV	floating leaved aquatic macrovegetation
FLO-LIV	flooded littoral vegetation
FLO-MEAD	flooded meadow
FLO-FOR	flooded undergrowth
GR	gravel
GR-LO-ST	gravel with loess and stones
GR-MU	gravel with mud
GR-ST	gravel with stones
GB	gravel bank
LIV	littoral vegetation
MU	mud
RR	riprap
TRO	root of littoral trees
SA	sand
SA-CL	sand with clay
SA-CL-GR	sand with clay and gravel
SA-GR	sand with gravel
SA-GR-ST	sand with gravel and stones
SA-MU	sand with mud
SA-MU-CO	sand with mud and gravel
ST	stones
SMV	submerged aquatic macrovegetation

Sampling time

Sampling times with the names of the actual collectors are in Table 3.

Table 3. Sampling times and the initials of actual collectors

1994.05.17-18, 07.18-19.	NJ
1995.07.11-12, 09.13-14.,10.31.-11.01.	NJ
1996.06.21-22., 07.30-31., 09.17-18., 10.30-31.	NJ
1997.06.27-28., 07.28-29., 09.09-10., 10.14-15.	NJ
1998.04.20.-21., 06.22-23., 09.01-02., 10.14.-15.	NJ
1998.05.27., 06.09-16., 06.23-24., 07.30.	CsG, NJ, ON
1998.10.21.	CsG, NJ, ON
1999.05.04.,05.25., 06.15.,07.06., 07.20., 07.27., 08.17., 09.07., 09.09., 09.28., 10.19., 11.08.	ON
1999.06.08.-09., 07.13.-14., 08.31.-09.01., 10.27.-28.	NJ
1999.06.23.-25.	NJ, ON
2000.04.18., 04.26., 05.02., 05.09., 05.23., 05.30., 06.06., 06.13., 06.20., 06.27., 07.05., 07.10., 07.18., 07.25., 08.01., 08.08., 08.15., 08.22., 08.29., 09.05., 09.12., 09.20., 09.26., 10.03., 10.11., 10.18., 10.24., 10.31., 11.07., 11.14., 12.05., 12.27.	ON
2000.07.11.-15.	CsG, NJ, ON
2001.01.16., 02.06., 02.27., 03.01., 03.31., 04.11., 05.02., 05.21., 06.03., 07.04., 07.24., 08.14., 09.04., 10.16., 11.08., 11.28., 12.18.	ON
2001.05.07.	BE, CsG, NJ, ON
2001.05.22.-25.	BE, CsG, NJ, ON
2001.07.02-03., 09.05-06., 10.09-10.	NJ
2001.07.08.	BE, CsG, NJ, ON
2002.05.01.	AS, BG, CsZ, NJ, VT
2002.06.11-12., 07.09-10., 09.17-18., 10.08-09.	NJ
2002.07.01.-03.	AS, BG, NJ, VT
2002.07.04.	AS, NJ, ON
2002.07.05.	CsG, ET, NJ, ON
2002.09.23.-25.	NJ, ON
2003.05.13.-14.	ME, NJ
2003.05.26.-31.	AS, BG, CsZ, NJ, VT
2003.07.22.-27.	ME, NJ
2003.09.08.-12.	BG, CsZ, NJ, ON
2004.07.23.-26., 08.24-29.	ME, NJ
2004.09.15.	NJ
2004.09.27.-30.	BG, CsZ, NJ, ON
2005.06.13.-16.	BG, CsZ, NJ, ON, VT
2005.06.22.-23., 09.14-15.	NJ, ON
2005.07.19.-22.	ME, NJ
2006.09.25-26.	BE, NJ
2007.05.07.	NJ, ON
2007.05.17.	BE, BP, NJ, ON

Sampling methods

According to the various taxonomic groups, developmental stages, water bodies and substrates different collection techniques were used. Sampling was made in the littoral zone of the different water bodies. Light traps were placed near the riverside (GOD1, 10 m from the Danube) and on the roof of the building of Hungarian Danube Research Station (GOD0, 150 m from the Danube). Artificial substrates were placed 20–25 m from the shoreline (according to the actual water level) immediately under the water surface (Mf) and near the bottom (Ma).

EU ISO-7828-1985 hand net (0.4 x 0.4 m) was used in two ways: in running waters up to 1 m depth in the case of coarse bed material (cobbles, pebbles, sand) it was used with the kicking and sweeping technique (**H**), above different bed material and along rip-rap zones without kicking the substrates (**V**).

On the riverside in shallow water Surber-sampler (**S**) (0.25 x 0.25 m) and core samplers (**T**) (0.04 and 0.19 m in diameter) were applied.

For collecting from soft bed material (mud, silt, fine organic deposit) triangular dredge (0.25 m) (**D**), Ekman-Birge-grab(**G**) (0.16 x 0.16 m), Petersen-grab (**P**) (0.31 x 0.31 m) and core samplers (**T4** 0.04 m, **T19** 0.19 m diameter) were used.

Macroinvertebrates from the macrophyte stands were collected by handnets (**K**) of different shapes. From submerged vegetation in deeper water circular net (0.25 m), from littoral and submerged vegetation in shallow waters semicircular net (0.25 m) and from dens emergent vegetation (reed, rushes *Phragmites*, *Typha*, *Acorus*, *Juncus* etc.) a drop-shaped net (KERTÉSZ et al. 1985) was applied. From stones, submerged trunks, tree branches animals were collected by hand (**C**) using forceps. Periphyton growing on different substrates was scraped (**L**) into a semicircular handnet.

In 1999 at two sites (GOD0 and GOD1) light traps (**Fc**) were also operated to collect Ephemeroptera, Odonata, Trichoptera, Heteroptera and Coleoptera (ANDRIKOVICS et al. 2001).

In 1999 and 2000 during 30-week-long periods artificial substrates (**M**) were used in a colonization study of macroinvertebrates. Results of faunistic interest will also be published in the series.

In some cases bottle traps (**Pc**) were also used, and some data originate from gut content analyses (**I**).

All net samplers were fitted with nets of 720 μ m of mesh size. Opening width of the samplers is in parenthesis.

The different sampling methods according their codes are listed in Table 4.

Table 4. Codes for different sampling devices and methods applied

C	sampling by hand
D	triangle dredge
E	electric fishing
F	freeze corer sampling
Fc	light trap
G	Ekman-Birge grab
H	handnet with kicking and sweeping technique
I	gut content analysis
K	handnet among aquatic macrovegetation
L	scraping
Ma	artificial substrate above the bottom
Mf	artificial substrate at the water surface
P	Petersen grab
Pc	bottle trap
S	Surber sampler
T19	core sampler of 19 cm diameter
T4	core sampler of 4 cm diameter
V	handnet without kicking technique

In the subsequent papers the code of the sampling site will be followed by the code(s) of the sampling method(s) used. If subsamples were collected at the same sampling site using different methods and these subsamples were mixed in situ, the codes of the separate methods follow closely each other. For example: GOD1-HDC means that at sampling site GOD1 subsamples were taken by hand net with kicking and sweeping technique, by triangle dredge and by hand and these subsamples were put together.

Sampling usually was made at day, but in some cases it was made at night. These cases are denoted by letter N in parenthesis after the code of the sampling method (CSA5-H(N) means kicking and sweeping sampling at night at sampling site CSA5).

Samples were fixed in situ by formaldehyde solution of 4%. The conserved material was separated into taxonomic groups and preserved in ethyl alcohol of 70%.

Acknowledgement: Investigations were supported by the Hungarian Scientific Research Fund (OTKA) Grant No. T025419, T037468, T046180, by the Ministry of Environment and Water and its legal predecessors. Thanks are due to Mrs Irma Kelényi-Welner for the laboratory work.

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