

## Contribution to the macroinvertebrate fauna of the Hungarian Danube. V. Amphipods (Crustacea: Malacostraca: Amphipoda)

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**ABSTRACT:** This paper provides occurrence data of amphipod species collected by the staff of the Hungarian Danube Research Station from 1994 to 2009. Altogether 751 samples from 209 sampling locations of the Hungarian Danube section (main channel, side branches, and adjacent wetlands) were processed, and 12 species were identified.

### Introduction, materials and methods

The main objective of this paper is summarising the faunistic results concerning amphipod crustaceans collected in different macroinvertebrate investigations carried out by the Hungarian Danube Research Station of the Hungarian Academy of Sciences in the water system of the Danube River (main channel, side branches, and adjacent wetlands) between 1994 and 2009.

Detailed descriptions of sampling sites and methods, and the explanations of the abbreviations can be found in NOSEK (2007). During the different investigations – according to the purpose of the given survey – several qualitative, semi-quantitative, and quantitative sampling techniques and devices were used such as: sampling by hand and forceps (**C**), hand net with “kicking & sweeping” technique by ISO 7828 type net (**H**), triangular dredge (**D**), their combinations (**CD**, **CK**, **DC**, **HC**, **HD**, **HDC**), Ekman-Birge grab (**G**), Surber sampler (**S**), hand net among aquatic macrovegetation (**K**), hand net without “kicking & sweeping” technique (**V**), and artificial (**M**) clay (**A**) and gravel (**K**) substrates used in long (**h**) and short (**r**) period colonization experiments on the surface (**F**) and at the bottom (**L**) of the river (**Mh-AF**, **Mh-AL**, **Mh-KL**, **Mr-AF**, **Mr-AL**, **Mr-KL**, respectively) (OERTEL 2000, 2002, OERTEL & NOSEK 2004, 2006).

Samples were fixed in-situ in 4% formaldehyde solution. After separation crustaceans were preserved in 70% ethanol. The animals were identified based on the works of CARAUSU et al. 1955, DUDICH 1955, EGGLERS & MARTENS 2001, 2004, JAZDZEWSKI & KONOPACKA 1996, KONTSCHÁN et al. 2002. Nomenclature of amphipods was used after EGGLERS & MARTENS (2004) and MUSKÓ (2007).

Samples were taken along the whole 417 km long Hungarian Danube reach, from its side branches (Szentendrei Danube, Ráckevei (Soroksári) Danube, Neszmély-Mocs, Táti, Gödi side-branches), from the water bodies of adjacent wetlands (Szigetköz area: abandoned main channel – the “Old Danube”, active alluvial flood plain, the flood-protected area, Mosoni Danube; Gemenc Landscape Protection Area, – “Gemenc”; Béda-Karapancsa Landscape Protection Area).

The results section of the article contains the code of the sampling locality, code of the method, date of collection and monogram of collectors (in parentheses), respectively. The data are arranged in alphabetical order of the code of the sampling sites. Different collecting dates belonging the same sampling locality and method are listed in chronological order. In this paper

there are some additional sampling sites and sampling methods not listed in NOSEK (2007). Their code, position, and microhabitat characteristics are to be found in Table 1. The register of collectors also increased with József Mester (MJ, Eszterházy Károly College Dept. of Zoology).

**Table 1.** Characteristics of sampling sites not included in NOSEK (2007).

Code	Sampling site	Locality	Position (lat/lon)	Microhabitat	Water system
<b>AKA1</b>	Duna-völgyi-főcsatorna at Akasztó	Akasztó	N46 41 53.5 E19 11 57.7	CL, ST, SMV	Danube main channel
<b>AKA2</b>	Kiskunsági-főcsatorna at Akasztó	Akasztó	N46 41 59.9 E19 11 44.2	LIV	Danube main channel
<b>CSP2</b>	Budapest (Csepel) Free Port, mouth	Budapest XXI.	N47 26 31.2 E19 03 21.5	RR	Danube main channel
<b>DRE6</b>	Seepage water canal at Lipót	Dunaremete	N47 52 46.2 E17 27 48.9	ST, TRO	Szigetköz, active alluvial floodplain
<b>ESZ4</b>	Danube main channel, 1719.2 river km	Esztergom	N47 47 27.7 E18 43 50.1	GR	Danube main channel
<b>GOD9</b>	Danube main channel, 1668.6 river km	Göd	N47 40 49.3 E19 07 33.7	RR	Danube main channel
<b>GON2</b>	Danube main channel, 1790.5 river km	Gönyű	N47 44 23.6 E17 50 05.5	GR-ST	Danube main channel
<b>MED3</b>	Danube main channel, 1805.6 river km	Győrzámoly	N47 47 21.1 E17 39 25.4	SA-GR-ST	Szigetköz, Danube main channel
<b>MOH2</b>	Danube main channel, 1446.0 river km	Mohács	N45 59 08.6 E18 42 07.1	GR-MU	Danube main channel
<b>NAG3</b>	Danube main channel, 1695.5 river km	Nagymaros	N47 47 27.0 E18 57 46.1	GR-ST	Danube main channel
<b>NYU2</b>	Danube main channel, 1733.4 river km	Nyergesújfalu	N47 45 45.7 E18 32 23.5	GR	Danube main channel
<b>RAJ6</b>	Mosoni-Duna upper sluice, tail-water	Rajka	N48 00 43.9 E17 12 56.9	RR	Mosoni Danube
<b>RAJ7</b>	Mosoni-Duna, 123.5 river km	Rajka	N48 00 42.0 E17 12 58.1	SMV	Mosoni Danube
<b>VAJ8</b>	Vajas-fok, Dusnok VII.	Dusnok	N46 23 03.5 E18 57 23.4	ST, SMV	Danube main channel

## Results

Twelve amphipod species of 5 families (Crangonyctidae, Niphargidae, Gammaridae, Pontogammaridae and Corophiidae) were found: *Synurella ambulans* Müller, 1846, *Niphargus tatreensis* Wrzesiowsky, 1888, *Niphargus valachicus* (Dobreanu & Manolache, 1933), *Echinogammarus ischnus* (Stebbing, 1899), *Echinogammarus trichiatus* (Martynov, 1932), *Dikerogammarus bispinosus* Martynov, 1925, *Dikerogammarus haemobaphes* (Eichwald, 1841), *Dikerogammarus villosus* (Sowinsky, 1894), *Obesogammarus obesus* (Sars, 1894), *Chelicorophium curvispinum* (G. O. Sars, 1895), *Chelicorophium robustum* (G. O. Sars, 1895), *Chelicorophium sowinskij* (Martynov, 1924).

During the 15-year survey altogether 1620 samples of 458 sampling points were elaborated for macroinvertebrates, and half of them, 751 samples of 209 sampling points contained amphipod crustaceans. Our results demonstrate that the amphipod fauna of the Danube is dominated by Ponto-Caspian immigrants. *Dikerogammarus villosus* is the most abundant and widespread species (661 samples), being present along the whole main channel of the Hungarian Danube and in the side branches, and adjacent wetlands. The distribution of *Chelicorophium curvispinum* (207 samples) is similar, except the Szentendrei Danube, where this species was not found during the studied period. *Obesogammarus obesus* (158 samples) was found in the water bodies of the Szigetköz area, in the main channel from Rajka to Mohács (1446 river km) and in the Szentendrei Danube, but it was absent in the Ráckevei (Soroksári) Danube and in the Gemenc and Béda-Karapancsa Landscape Protection Areas. *Chelicorophium sowinskyi* (80 samples) was widespread upstream of Göd (1669 river km); however, below this section it was entirely absent. *Dikerogammarus bispinosus* (67 samples), *Echinogammarus ischnus* (41 samples) and *Dikerogammarus haemobaphes* (36 samples) also appear in the water bodies of the Szigetköz area and in the main channel from Rajka to Mohács. *Dikerogammarus bispinosus* is absent in Gemenc and Béda-Karapancsa, *Dikerogammarus haemobaphes* in Ráckevei (Soroksári) Danube, while *Echinogammarus ischnus* is absent in both areas.

The other five species were found in less than 2.5% of the samples containing amphipods. *Niphargus valachicus* cannot be found in the main channel of the Danube; it occurred only in adjacent oxbow lakes and inflow channels, as well as in the wetlands of Szigetköz, Gemenc, and Béda-Karapancsa. *Chelicorophium robustum*, a recent Ponto-Caspian invader, was found first in 2007 at Nyergesújfalu (1843 river km), then in 2009 at 8 sampling sites from Dunakiliti to Nagymaros. *Synurella ambulans* was found in 1998 at 3 sampling sites between 1835 and 1707 river km. *Niphargus tatrensis* occurred at 2 places in 2001, in the Mosoni Danube and the Old Danube. The latter two species cannot be regarded as residents in the Danube main arm, their occurrence is probably a result of occasional drift. *Echinogammarus trichiatus*, another recent Ponto-Caspian immigrant has only one known occurrence in Hungary at the moment; it was recorded for the first time in 2009 in the Mosoni Danube at the Rajka sluice (BORZA 2009).

#### List of species

*Synurella ambulans* Müller, 1846 – DUF1-H: 1998.09.01., (NJ, ON) – PIL1-H: 1998.10.15., (NJ, ON) – SUT1-H: 1998.10.15., (NJ, ON)

*Niphargus tatrensis* Wrzesniowsky, 1888 – DUF3-K: 2001.07.02., (NJ) – VEN1-DC: 2001.05.07., (BE, CsG, NJ, ON)

*Niphargus valachicus* (Dobreanu & Manolache, 1933) – BAD1-K: 2005.07.21., (ME, NJ) – BFD1-K: 2004.08.26., (ME, NJ) – BFD2-K: 2005.07.21., (ME, NJ) – CSA1-C: 2002.06.11., (NJ) – CSA4-D: 2006.09.25., (NJ) – CSA7-C: 2004.09.15., (NJ) – DND6-K: 2005.07.20., (ME, NJ) – KAC1-K: 2002.05.01., (ME, NJ) – KAD1-K: 2005.07.22., (ME, NJ) – KIO2-K: 2003.05.13., (ME, NJ) – KRC1-K: 2005.07.21., (ME, NJ) – KRC3-K: 2005.07.21., (ME, NJ) – MMO1-K: 2003.05.28., (AS, BG, CsZ, NJ, VT) – RIH1-K: 2004.08.27., (ME, NJ) – SCH3-K: 2004.09.15., (NJ) – SZC1-D: 2003.07.22., (ME, NJ) – VAJ7-K: 2005.06.16., (BG, CsZ, NJ, ON, VT) – ZAT3-K: 1996.06.20., (NJ); 2001.09.05., (NJ) – ZAT4-K: 2007.07.23., (NJ, ME)

*Echinogammarus ischnus* (Stebbing, 1899) – BOD2-K: 2003.05.30., (AS, BG, CsZ, NJ) – CSA1-C: 2001.09.05., (NJ); 2004.07.23., (ME, NJ) – CSA6-C: 2004.09.15., (NJ) – DKI0 -V: 2009.09.15., (BP) – DKI1-HDC: 2001.05.07., (BE, CsG, NJ, ON) – DKI2-C: 1999.06.08., (NJ); 1999.09.01., (NJ); 1999.10.27., (NJ); 1999.10.28., (NJ) – DKI2-H: 1999.10.27., (NJ) – DKI3-C: 1999.08.31., (NJ) – DRE2-C: 2001.10.09., (NJ); 2008.09.15., (NJ, ME) – DRE2-CH: 2001.05.07., (BE, CsG, NJ, ON) – DRE6-V: 2009.09.15., (BP) – DUF3-K: 1995.09.13., (NJ);

1999.08.31., (NJ) – DUF5-HD: 2001.05.07., (BE, CsG, NJ, ON) – DUJ1-H: 1998.10.21., (CsG, NJ, ON) – DUJ1-HD: 2001.05.22., (BE, CsG, NJ, ON) – ERM2-HD: 2007.05.17., (BE, BP, NJ, ON) – ESZ2-D: 2007.07.30., (ON, NJ) – FOM1-D: 2007.07.30., (ON, NJ) – HTV1-K: 2004.07.25., (ME, NJ); 2004.09.27., (ME, NJ) – MED1-H: 2001.05.07., (BE, CsG, NJ, ON) – MED2-C: 2009.09.09., (NJ, ME) – MED2-V: 2009.09.16., (BP) – MED3-V: 2009.09.16., (BP) – MOH1-H: 1998.10.21., (CsG, NJ, ON) – NBA2-H: 2003.05.14., (ME, NJ) – NYU2-V: 2009.10.07., (BP) – PIL1-HD: 2001.05.08., (BE, CsG, NJ, ON); 2007.05.07., (NJ, ON) – RAJ6-V: 2009.09.15., (BP) – SUT2-H: 2002.07.02., (AS, BG, NJ, VT) – SZO2-C: 2007.05.07., (NJ, ON); SZO2-C: 2007.07.30., (ON, NJ) – TAHI-H: 2002.09.25., (NJ, ON) – VIS1-HD: 2001.05.25., (BE, CsG, NJ, ON)

*Echinogammarus trichiatus* (Martynov, 1932) – RAJ6-V: 2009.09.15., (BP)

*Dikerogammarus bispinosus* Martynov, 1925 – ALM1-H: 2003.05.14., (ME, NJ) – CIK2-K: 2003.05.29., (AS, BG, CsZ, NJ) – CIK4-K: 2003.07.26., (ME, NJ) – CSA2-CK: 2006.09.25., (NJ); 2007.09.17., (NJ, ME); 2008.07.16., (NJ, ME) – CSA4-K: 2004.07.23., (ME, NJ) – CSK1-K: 2004.09.15., (NJ) – DBO1-H: 2003.05.13., (ME, NJ) – DKI1-H: 2003.07.22., (ME, NJ); 2003.09.08., (BG, CsZ, NJ, ON) – DKI2-C: 2008.07.16., (NJ, ME) – DKI3-C: 1999.07.13., (NJ) – DKI5-K: 2003.07.22., (ME, NJ) – DRE2-C: 1996.07.30., (NJ); 1996.09.17., (NJ); 2007.05.15., (NJ) – DRE2-CH: 2001.05.07., (BE, CsG, NJ, ON) – DRE2-K: 2004.07.25., (ME, NJ) – DUF0-K: 1996.07.30., (NJ); 1996.09.17., (NJ) – DUF2-K: 1996.07.30., (NJ) – DUF3-D: 2003.09.08., (BG, CsZ, NJ, ON) – DUF4-C: 1996.07.30., (NJ); 2001.09.05., (NJ); 2003.09.08., (BG, CsZ, NJ, ON) – ERM1-K: 2002.07.02., (AS, BG, NJ, VT) – ESZ2-HD: 2001.05.08., (BE, CsG, NJ, ON) – FAJ1-HD: 2001.05.23., (BE, CsG, NJ, ON) – GON1-V: 2009.09.16., (BP) – KIM1-H: 2002.07.04., (AS, MJ, NJ, ON); 2002.09.25., (NJ, ON); 2003.05.13., (ME, NJ) – KOM1-C: 2003.05.14., (ME, NJ) – KOM2-HD: 2007.10.26., (ON, NJ) – KOP1-H: 2002.09.23., (NJ, ON) – LUP1-H: 2003.05.13., (ME, NJ) – LUP1-HD: 2001.05.08., (BE, CsG, NJ, ON) – MED2-C: 2007.07.23., (NJ, ME); 2008.09.15., (NJ, ME) – MOH2-H: 2008.10.08., (BP) – NAG1-H: 2002.09.25., (NJ, ON); 2003.05.13., (ME, NJ) – NBA2-H: 2002.09.23., (NJ, ON) – NMM2-K: 2002.07.02., (AS, BG, NJ, VT) – NYU2-V: 2009.10.07., (BP) – PAK1-HD: 2001.05.22., (BE, CsG, NJ, ON) – PIL1-H: 2003.05.13., (ME, NJ) – PIL1-HD: 2007.05.07., (NJ, ON) – RAJ1-K: 2003.07.22., (ME, NJ) – RAJ6-V: 2009.09.15., (BP) – SMI1-K: 2005.09.14., (NJ, ON) – SUT1-H: 2003.05.13., (ME, NJ) – SUT1-HC: 2007.05.07., (NJ, ON) – SZN1-H: 2002.07.05., (CsG, ET, NJ, ON) – SZO1-H: 2002.09.25., (NJ, ON); 2003.05.13., (ME, NJ) – SZO2-C: 2007.05.07., (NJ, ON) – TAT1-HD: 2007.05.07., (NJ, ON) – TAT3-H: 2003.05.13., (ME, NJ) – VAC2-C: 2002.07.04., (AS, MJ, NJ, ON) – VAC3-H: 2003.05.13., (ME, NJ) – VEN2-H: 2002.07.01., (AS, BG, NJ, VT) – VIS1-H: 2002.09.25., (NJ, ON); 2003.05.13., (ME, NJ) – ZAT2-C: 1999.10.27., (NJ); 2007.09.17., (NJ, ME)

*Dikerogammarus haemobaphes* (Eichwald, 1841) – BAG2-K: 2003.09.09., (BG, CsZ, NJ, ON) – DFL1-H: 1998.10.21., (CsG, NJ, ON) – DKI1-H: 1998.09.01., (NJ, ON) – DRE6-V: 2009.09.15., (BP) – DSZ1-H: 1998.10.21., (CsG, NJ, ON) – DUF0-K: 1999.06.08., (NJ) – DUF4-C: 1998.09.01., (NJ, ON) – DUJ1-H: 1998.10.21., (CsG, NJ, ON) – DUJ1-HD: 2001.05.22., (BE, CsG, NJ, ON) – FOM1-D: 2007.07.30., (ON, NJ) – GOD1-H: 1999.09.07., (ON); 2000.05.09., (ON); 2000.05.30., (ON); 2000.06.20., (ON); 2000.09.12., (ON); 2001.03.21., (ON) – GOD1-S: 2005.06.26., (NJ, ON) – GON1-V: 2009.09.16., (BP) – HAL0-C: 2001.08.20., (NJ) – KED1-K: 2005.06.16., (BG, CsZ, NJ, ON, VT) – KIB1-D: 2003.07.27., (ME, NJ) – KIM1-S: 2005.08.15., (NJ, ON) – KML1-D: 2003.07.24., (ME, NJ) – KOP1-H: 1998.06.23., (NJ, ON) – LUP1-H: 2002.07.05., (CsG, ET, NJ, ON) – MOH1-HD: 2001.05.22., (BE, CsG, NJ, ON) – MOH2-H: 2008.10.08., (BP) – NAG1-HD: 2001.05.25., (BE, CsG, NJ, ON) – PAK1-C: 1998.06.11., (CsG, NJ, ON) – PIL1-HD: 2007.05.07., (NJ, ON) – SZO2-C: 2007.05.07., (NJ, ON) – TAT2-K: 2002.07.03., (AS, BG, NJ, VT) – VAJ8-V: 2009.10.21., (BP) – VED1-D: 2004.08.25., (ME, NJ) – VEN2-H: 2002.07.01., (AS, BG, NJ, VT) – ZAT1-D: 2003.07.23., (ME, NJ)

*Dikerogammarus villosus* (Sowinsky, 1894) – ADO1-HD: 2001.05.22., (BE, CsG, NJ, ON) – AKA1-V: 2009.10.21., (BP) – ALF1-H: 2002.07.02., (AS, BG, NJ, VT); 2003.05.14., (ME, NJ) – ALF1-HC: 2007.05.07., (ON, NJ); 2007.05.17., (BE, BP, NJ, ON); 2007.07.31., (ON, NJ); 2007.10.26., (ON, NJ) – ALM1-D: 1998.06.09., (CsG, NJ, ON); 2007.05.07., (ON, NJ); 2007.10.25., (ON, NJ) – ALM1-H: 1998.06.09., (CsG, NJ, ON); 1998.10.15., (NJ, ON); 2002.09.23., (NJ, ON) – ALM1-HD: 2007.07.30., (ON, NJ) – ASV2-C: 2002.07.09., (NJ); 2002.09.17., (NJ) – ASV3-D: 2003.09.09., (BG, CsZ, NJ, ON) – ASV3-K: 2003.09.09., (BG, CsZ, NJ, ON) – ASV6-C: 2003.09.09., (BG, CsZ, NJ, ON); 2004.07.25., (ME, NJ) – ASV6-CD: 2007.05.15., (NJ); 2007.07.23., (NJ, ME) – ASV6-D: 2006.09.26., (NJ) – BAG1-D: 2003.07.26., (ME, NJ) – BAG2-D: 2003.09.09., (BG, CsZ, NJ, ON) – BAJ2-H: 1998.10.21., (CsG, NJ, ON) – BOD2-H: 2003.09.08., (BG, CsZ, NJ, ON) – BOD2-K: 1995.09.13., (NJ); 1997.09.09., (NJ); 1998.04.20., (NJ); 1998.06.22., (NJ, ON); 1999.06.08., (NJ); 2001.07.02., (NJ); 2001.10.09., (NJ); 2002.09.17., (NJ); 2002.10.07., (NJ); 2003.05.30., (AS, BG, CsZ, NJ); 2003.07.25., (ME, NJ); 2003.09.08., (BG, CsZ, NJ, ON) – CIK1-K: 2004.07.23., (ME, NJ) – CIK2-H: 2003.09.08., (BG, CsZ, NJ, ON) –

CIK2-K: 1999.06.08., (NJ); 1999.08.31., (NJ); 1999.10.27., (NJ); 2001.07.02., (NJ); 2001.09.05., (NJ); 2001.10.09., (NJ); 2002.07.09., (NJ); 2002.10.07., (NJ); 2003.05.29., (AS, BG, CsZ, NJ); 2003.07.25., (ME, NJ); 2003.09.08., (BG, CsZ, NJ, ON); 2006.09.26., (NJ); 2007.05.15., (NJ) – CIK3-C: 2003.07.26., (ME, NJ) – CIK4-K: 2003.07.26., (ME, NJ) – CIK5-K: 2004.07.24., (ME, NJ) – CIK7-K: 2004.07.24., (ME, NJ) – CSA1-C: 1996.06.20., (NJ); 1996.07.30., (NJ); 2001.07.02., (NJ); 2001.09.05., (NJ); 2002.06.11., (NJ); 2003.07.25., (ME, NJ); 2003.09.09., (BG, CsZ, NJ, ON); 2004.07.23., (ME, NJ); 2008.09.24., (NJ, ME) – CSA1-CK: 2007.05.16., (NJ); 2007.07.23., (NJ, ME) – CSA2-CK: 1998.06.22., (NJ, ON); 1998.09.01., (NJ, ON); 1998.10.14., (NJ, ON); 1999.07.13., (NJ); 1999.10.27., (NJ); 2002.07.09., (NJ); 2002.09.17., (NJ); 2003.05.26., (AS, BG, CsZ, NJ, VT); 2003.05.27., (AS, BG, CsZ, NJ, VT); 2006.09.25., (NJ); 2007.05.16., (NJ); 2008.07.16., (NJ, ME); 2009.09.09., (NJ, ME) – CSA4-D: 2006.09.25., (NJ) – CSA4-K: 1996.06.20., (NJ); 2003.07.25., (ME, NJ); 2003.09.08., (BG, CsZ, NJ, ON); 2004.07.23., (ME, NJ); 2007.05.16., (NJ); 2008.09.24., (NJ, ME) – CSA5-C: 2004.09.15., (NJ) – CSA6-C: 2004.09.15., (NJ) – CSA7-C: 2004.09.15., (NJ) – CSA8-K: 2004.09.15., (NJ) – CSK0-K: 2003.09.08., (BG, CsZ, NJ, ON) – CSK1-K: 2004.09.15., (NJ) – CSK2-K: 2004.09.15., (NJ) – CSK3-K: 2004.09.15., (NJ) – CSK4-K: 2004.09.15., (NJ) – CSK5-K: 2004.09.15., (NJ) – CSO2-K: 2004.09.15., (NJ) – CSO3-K: 2004.09.15., (NJ) – CSP1-K: 2005.09.14., (NJ, ON) – DBO1-H: 2002.07.05., (CsG, ET, NJ, ON); 2002.09.25., (NJ, ON); 2003.05.13., (ME, NJ) – DFL1-C: 1998.06.11., (CsG, NJ, ON) – DFL1-H: 1998.06.11., (CsG, NJ, ON); 1998.10.21., (CsG, NJ, ON) – DFL1-HD: 2001.05.22., (BE, CsG, NJ, ON) – DIS1-K: 2004.09.15., (NJ) – DKE1-H: 2002.07.05., (CsG, ET, NJ, ON) – DKI0 -D: 2007.07.23., (NJ, ME); 2008.09.24., (NJ, ME) – DKI0 -K: 1999.08.31., (NJ); 2007.07.23., (NJ, ME); 2008.07.16., (NJ, ME); 2009.09.09., (NJ, ME) – DKI0 -V: 2009.09.15., (BP) – DKI1-H: 1998.06.22., (NJ, ON); 1998.09.01., (NJ, ON); 2003.05.30., (AS, BG, CsZ, NJ); 2003.07.22., (ME, NJ); 2003.09.08., (BG, CsZ, NJ, ON) – DKI2-C: 1995.09.13., (NJ); 1996.07.30., (NJ); 1996.09.17., (NJ); 1998.04.20., (NJ); 1998.06.22., (NJ, ON); 1998.10.14., (NJ, ON); 1999.06.08., (NJ); 1999.07.13., (NJ); 1999.08.31., (NJ); 1999.10.27., (NJ); 1999.10.28., (NJ); 2001.07.02., (NJ); 2001.09.05., (NJ); 2001.10.09., (NJ); 2002.07.09., (NJ); 2002.09.17., (NJ); 2002.10.07., (NJ); 2003.05.30., (AS, BG, CsZ, NJ); 2003.07.22., (ME, NJ); 2003.09.08., (BG, CsZ, NJ, ON); 2004.07.24., (ME, NJ); 2006.09.25., (NJ); 2007.05.16., (NJ); 2007.07.23., (NJ, ME); 2008.09.24., (NJ, ME); 2009.09.09., (NJ, ME) – DKI2-H: 1999.10.27., (NJ) – DKI3-C: 1994.07.18., (NJ); 1999.07.13., (NJ); 1999.08.31., (NJ) – DKI4-D: 2003.07.22., (ME, NJ) – DKI5-K: 2003.07.22., (ME, NJ) – DKI6-C: 2003.07.22., (ME, NJ) – DKI8-K: 1996.06.20., (NJ) – DOB1-K: 2004.07.23., (ME, NJ) – DOF1-K: 2004.07.24., (ME, NJ) – DOM1-C: 2001.05.23., (BE, CsG, NJ, ON) – DOM1-K: 2005.06.23., (NJ, ON); 2005.09.15., (NJ, ON) – DRE2-C: 1996.07.30., (NJ); 1998.04.20., (NJ); 1998.06.22., (NJ, ON); 1998.09.01., (NJ, ON); 1998.10.14., (NJ, ON); 1999.06.08., (NJ); 1999.07.13., (NJ); 1999.08.31., (NJ); 1999.10.27., (NJ); 2001.07.02., (NJ); 2001.09.05., (NJ); 2001.10.09., (NJ); 2002.06.11., (NJ); 2002.07.09., (NJ); 2002.09.17., (NJ); 2002.10.07., (NJ); 2003.07.24., (ME, NJ); 2006.09.26., (NJ); 2007.05.15., (NJ); 2007.07.23., (NJ, ME); 2008.07.17., (NJ, ME); 2008.09.15., (NJ, ME); 2009.09.10., (NJ, ME) – DRE2-CH: 2001.05.07., (BE, CsG, NJ, ON) – DRE2-K: 2004.07.25., (ME, NJ) – DRE3-C: 2003.07.24., (ME, NJ) – DRE4-K: 2004.07.25., (ME, NJ) – DSG1-D: 2003.05.28., (AS, BG, CsZ, NJ, VT) – DSG1-H: 2003.05.28., (AS, BG, CsZ, NJ, VT) – DSG1-K: 2003.05.28., (AS, BG, CsZ, NJ, VT) – DSZ1-D: 1998.06.16., (CsG, NJ, ON) – DSZ1-H: 1998.10.21., (CsG, NJ, ON) – DSZ1-HD: 2001.05.22., (BE, CsG, NJ, ON) – DUF0 -C: 1998.04.20., (NJ); 1998.06.22., (NJ, ON); 1998.09.01., (NJ, ON); 1998.10.14., (NJ, ON); 2001.07.02., (NJ); 2001.09.05., (NJ); 2001.10.09., (NJ); 2003.09.08., (BG, CsZ, NJ, ON) – DUF0 -K: 1995.09.13., (NJ); 1996.06.21., (NJ); 1996.07.30., (NJ); 1999.06.08., (NJ); 1999.07.13., (NJ); 1999.08.31., (NJ); 1999.10.27., (NJ); 2002.07.09., (NJ) – DUF1-H: 1998.06.22., (NJ, ON); 1998.09.01., (NJ, ON) – DUF1-K: 1995.09.13., (NJ) – DUF2-C: 1998.09.01., (NJ, ON); 1998.10.14., (NJ, ON); 1999.06.08., (NJ) – DUF2-K: 1996.06.21., (NJ); 1997.09.09., (NJ) – DUF3-D: 2003.09.08., (BG, CsZ, NJ, ON) – DUF3-K: 1995.07.11., (NJ); 1998.06.22., (NJ, ON); 1998.09.01., (NJ, ON); 1998.10.14., (NJ, ON); 1999.06.08., (NJ); 1999.07.13., (NJ); 1999.08.31., (NJ); 1999.10.27., (NJ); 2001.07.02., (NJ); 2001.09.05., (NJ); 2001.10.09., (NJ); 2002.06.11., (NJ); 2002.07.09., (NJ); 2003.07.25., (ME, NJ); 2003.09.08., (BG, CsZ, NJ, ON) – DUF5-HD: 2001.05.07., (BE, CsG, NJ, ON) – DUF6-K: 2003.07.25., (ME, NJ) – DUF9-C: 1995.09.13., (NJ) – DUH1-HD: 2001.05.23., (BE, CsG, NJ, ON) – DUH5-D: 2005.09.14., (NJ, ON) – DUJ1-H: 1998.06.11., (CsG, NJ, ON); 1998.10.21., (CsG, NJ, ON) – ERM1-K: 2002.07.02., (AS, BG, NJ, VT) – ERM2-HD: 2007.05.17., (BE, BP, NJ, ON); 2007.07.31., (ON, NJ) – ESZ1-C: 1998.06.24., (NJ, ON) – ESZ1-H: 1998.06.24., (NJ, ON); 1998.10.15., (NJ, ON); 2002.07.03., (AS, BG,

NJ, VT); 2002.09.24., (NJ, ON); 2003.05.13., (ME, NJ) – ESZ2-D: 2007.05.07., (ON, NJ); 2007.07.30., (ON, NJ); 2007.10.25., (ON, NJ) – ESZ2-HD: 2001.05.08., (BE, CsG, NJ, ON) – ESZ3-HD: 2007.05.07., (ON, NJ); 2007.07.30., (ON, NJ); 2007.10.25., (ON, NJ) – FAJ1-HD: 2001.05.23., (BE, CsG, NJ, ON) – FEK1-D: 2003.09.10., (BG, CsZ, NJ, ON) – FEK1-H: 2003.05.28., (AS, BG, CsZ, NJ, VT) – FEK1-K: 2003.05.28., (AS, BG, CsZ, NJ, VT); 2003.07.23., (ME, NJ) – FOM1-D: 2007.05.07., (ON, NJ); 2007.10.25., (ON, NJ) – GOD1-H: 1999.08.17., (ON); 1999.09.07., (ON); 1999.09.28., (ON); 1999.10.19., (ON); 1999.11.09., (ON); 2000.04.18., (ON); 2000.05.09., (ON); 2000.05.30., (ON); 2000.06.20., (ON); 2000.07.10., (ON); 2000.08.01., (ON); 2000.08.22., (ON); 2000.09.12., (ON); 2000.10.03., (ON); 2000.10.24., (ON); 2000.11.14., (ON); 2000.12.05., (ON); 2000.12.27., (ON); 2001.01.16., (ON); 2001.02.06., (ON); 2001.02.27., (ON); 2001.03.21., (ON); 2001.04.11., (ON); 2001.05.02., (ON) – GOD1-Mh-AF: 1999.05.04., (ON, NJ); 1999.05.25., (ON, NJ); 1999.06.15., (ON, NJ); 1999.07.06., (ON, NJ); 1999.07.27., (ON, NJ); 1999.08.17., (ON, NJ); 1999.09.28., (ON, NJ); 1999.10.19., (ON, NJ); 1999.11.09., (ON, NJ); 2000.05.09., (ON, NJ); 2000.05.30., (ON, NJ); 2000.06.20., (ON, NJ); 2000.07.10., (ON, NJ); 2000.08.01., (ON, NJ); 2000.08.22., (ON, NJ); 2000.09.12., (ON, NJ); 2000.10.03., (ON, NJ); 2000.10.24., (ON, NJ); 2000.11.14., (ON, NJ) – GOD1-Mh-AL: 1999.05.04., (ON, NJ); 1999.05.25., (ON, NJ); 1999.06.15., (ON, NJ); 1999.07.06., (ON, NJ); 1999.07.27., (ON, NJ); 1999.08.17., (ON, NJ); 1999.09.28., (ON, NJ); 1999.10.19., (ON, NJ); 1999.11.09., (ON, NJ); 2000.05.09., (ON, NJ); 2000.05.30., (ON, NJ); 2000.06.20., (ON, NJ); 2000.07.10., (ON, NJ); 2000.08.01., (ON, NJ); 2000.08.22., (ON, NJ); 2000.09.12., (ON, NJ); 2000.10.03., (ON, NJ); 2000.10.24., (ON, NJ); 2000.11.14., (ON, NJ) – GOD1-Mh-KL: 1999.05.04., (ON, NJ); 1999.05.25., (ON, NJ); 1999.06.15., (ON, NJ); 1999.07.06., (ON, NJ); 1999.07.27., (ON, NJ); 1999.08.17., (ON, NJ); 1999.09.28., (ON, NJ); 1999.10.19., (ON, NJ); 1999.11.09., (ON, NJ); 2000.05.09., (ON, NJ); 2000.05.30., (ON, NJ); 2000.06.20., (ON, NJ); 2000.07.10., (ON, NJ); 2000.08.01., (ON, NJ); 2000.08.22., (ON, NJ); 2000.09.12., (ON, NJ); 2000.10.03., (ON, NJ); 2000.10.24., (ON, NJ); 2000.11.14., (ON, NJ) – GOD1-Mr-AF: 1999.05.04., (ON, NJ); 1999.05.25., (ON, NJ); 1999.06.15., (ON, NJ); 1999.07.06., (ON, NJ); 1999.07.27., (ON, NJ); 1999.08.17., (ON, NJ); 1999.09.28., (ON, NJ); 1999.10.19., (ON, NJ); 1999.11.09., (ON, NJ); 2000.05.09., (ON, NJ); 2000.05.30., (ON, NJ); 2000.06.20., (ON, NJ); 2000.07.10., (ON, NJ); 2000.08.01., (ON, NJ); 2000.08.22., (ON, NJ); 2000.09.12., (ON, NJ); 2000.10.03., (ON, NJ); 2000.10.24., (ON, NJ); 2000.11.14., (ON, NJ) – GOD1-Mr-AL: 1999.05.04., (ON, NJ); 1999.05.25., (ON, NJ); 1999.06.15., (ON, NJ); 1999.07.06., (ON, NJ); 1999.07.27., (ON, NJ); 1999.08.17., (ON, NJ); 1999.09.28., (ON, NJ); 1999.10.19., (ON, NJ); 1999.11.09., (ON, NJ); 2000.05.09., (ON, NJ); 2000.05.30., (ON, NJ); 2000.06.20., (ON, NJ); 2000.07.10., (ON, NJ); 2000.08.01., (ON, NJ); 2000.08.22., (ON, NJ); 2000.09.12., (ON, NJ); 2000.10.03., (ON, NJ); 2000.10.24., (ON, NJ); 2000.11.14., (ON, NJ) – GOD1-Mr-KL: 1999.05.04., (ON, NJ); 1999.05.25., (ON, NJ); 1999.06.15., (ON, NJ); 1999.07.06., (ON, NJ); 1999.07.27., (ON, NJ); 1999.08.17., (ON, NJ); 1999.09.28., (ON, NJ); 1999.10.19., (ON, NJ); 1999.11.09., (ON, NJ); 2000.05.09., (ON, NJ); 2000.05.30., (ON, NJ); 2000.06.20., (ON, NJ); 2000.07.10., (ON, NJ); 2000.08.01., (ON, NJ); 2000.08.22., (ON, NJ); 2000.09.12., (ON, NJ); 2000.10.03., (ON, NJ); 2000.10.24., (ON, NJ); 2000.11.14., (ON, NJ) – GOD1-Mr-AL: 1999.05.04., (ON, NJ); 1999.05.25., (ON, NJ); 1999.06.15., (ON, NJ); 1999.07.06., (ON, NJ); 1999.07.27., (ON, NJ); 1999.08.17., (ON, NJ); 1999.09.28., (ON, NJ); 1999.10.19., (ON, NJ); 1999.11.09., (ON, NJ); 2000.05.09., (ON, NJ); 2000.05.30., (ON, NJ); 2000.06.20., (ON, NJ); 2000.07.10., (ON, NJ); 2000.08.01., (ON, NJ); 2000.08.22., (ON, NJ); 2000.09.12., (ON, NJ); 2000.10.03., (ON, NJ); 2000.10.24., (ON, NJ); 2000.11.14., (ON, NJ) – GOD1-S: 2005.06.26., (NJ, ON); 2005.08.15., (NJ, ON); 2005.09.23., (NJ, ON); 2005.11.08., (NJ, ON) – GOD2-H: 2006.10.25., (BE, BP, NJ, ON) – GOD2-S: 2005.06.26., (NJ, ON); 2005.08.15., (NJ, ON); 2005.09.23., (NJ, ON); 2005.11.08., (NJ, ON); 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOD6-H: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOD6-S: 2006.07.18., (BE, BP, NJ, ON) – GOD7-H: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOD7-S: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOM4-H: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOM4-S: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GON1-C: 1998.09.02., (NJ, ON); 2005.11.08., (NJ, ON); 2007.05.17., (BE, BP, NJ, ON) – GON1-H: 1998.06.23., (NJ, ON); 2002.09.23., (NJ, ON); 2003.05.14., (ME, NJ); 2007.07.31., (ON, NJ); 2007.10.26., (ON, NJ) – GON1-HD: 2007.07.31., (ON, NJ) – GON1-V: 2009.09.16., (BP) – GON2-HD: 2007.05.17., (BE, BP, NJ, ON) – GOR1-K: 2004.07.24., (ME, NJ) – GOR3-H: 2003.09.08., (BG, CsZ, NJ, ON) – GOS1-D: 2003.07.26., (ME, NJ); 2003.09.08., (BG, CsZ, NJ, ON) – HAL0-C: 1998.09.01., (NJ, ON); 2001.08.20., (NJ); 2003.05.29., (AS, BG, CsZ, NJ) – HAL1-H: 2003.05.29., (AS, BG, CsZ, NJ) – HAL2-H: 1998.07.30., (CsG, ON) – HAL4-C: 1998.07.30., (CsG, ON) – HAL5-C: 1998.07.30., (CsG, ON) – HAL6-C: 1998.07.30., (CsG, ON) – HAM1-D: 2003.07.23., (ME, NJ) – HAM1-HC: 2001.05.07., (BE, CsG, NJ, ON) – HAM1-K: 2003.07.23., (ME, NJ) – HAR1-HD: 2001.08.16., (BE, CsG, NJ, ON) – HED2-K: 2004.07.26., (ME, NJ) – HLR1-K: 2004.07.26., (ME, NJ) – HLR2-C: 2004.07.25., (ME, NJ) – HRT1-HD: 2001.05.23., (BE, CsG, NJ, ON) – KIB1-K: 2003.07.27., (ME, NJ) – KIB1-D: 2003.07.27., (ME, NJ) – KIM1-D: 1998.05.27., (CsG, ON) – KIM1-H: 1998.05.27., (CsG, ON) – KIM1-S: 2005.06.26., (NJ, ON); 2005.08.15., (NJ, ON); 2005.09.23., (NJ, ON); 2005.11.08., (NJ, ON) – KKL1-K: 2005.06.23., (NJ, ON); 2005.09.14., (NJ, ON) – KML1-D: 2003.09.10., (BG, CsZ, NJ, ON) – KML1-K: 2003.07.24., (ME, NJ); 2003.09.10., (BG, CsZ, NJ, ON) – KOM1-C: 2004.09.28., (ME, NJ); 2007.05.17., (BE, BP, NJ, ON) – KOM2-H: 2007.05.17., (BE, BP, NJ, ON); 2007.07.31., (ON, NJ) – KOM2-HD: 2007.10.26., (ON, NJ) – KOP1-D: 2007.05.17., (BE, BP, NJ, ON) – KOP1-H: 1998.06.09., (CsG, NJ, ON); 1998.06.23., (NJ, ON); 1998.10.15., (NJ, ON); 2002.07.02., (AS, BG, NJ, VT); 2003.05.14., (ME, NJ) – KOP1-HD: 2001.05.08., (BE, CsG, NJ, ON); 2007.05.17., (BE, BP, NJ, ON); 2007.07.31., (ON, NJ) – LIP3-K: 2007.07.24., (NJ, ME); 2008.09.25., (NJ, ME) – LUP1-H: 2002.07.05., (CsG, ET, NJ, ON); 2003.05.13., (ME, NJ)

– LUP1-HD: 2001.05.08., (BE, CsG, NJ, ON) – MAK1-K: 2005.06.23., (NJ, ON) – MAK2-K: 2005.06.23., (NJ, ON); 2005.09.15., (NJ, ON) – MEC1-D: 2003.05.28., (AS, BG, CsZ, NJ, VT) – MEC1-H: 2003.05.28., (AS, BG, CsZ, NJ, VT) – MEC1-HDC: 2001.05.07., (BE, CsG, NJ, ON) – MEC1-K: 2003.05.28., (AS, BG, CsZ, NJ, VT) – MED1-C: 1998.06.23., (NJ, ON); 1998.09.02., (NJ, ON); 2002.07.01., (AS, BG, NJ, VT); 2003.05.14., (ME, NJ) – MED1-H: 1998.06.23., (NJ, ON); 1998.09.02., (NJ, ON); 2001.05.07., (BE, CsG, NJ, ON) – MED2-C: 2006.09.25., (NJ); 2007.05.17., (BE, BP, NJ, ON); 2007.07.23., (NJ, ME); 2009.09.09., (NJ, ME) – MED2-V: 2009.09.16., (BP) – MED3-V: 2009.09.16., (BP) – MMO1-D: 2003.05.28., (AS, BG, CsZ, NJ, VT) – MMO1-K: 2003.05.28., (AS, BG, CsZ, NJ, VT) – MOH1-H: 1998.06.16., (CsG, NJ, ON) – MOH2-H: 2008.10.08., (BP) – NAG1-H: 2002.07.04., (AS, MJ, NJ, ON); 2003.05.13., (ME, NJ) – NAG2-H: 2002.07.04., (AS, MJ, NJ, ON) – NBA2-H: 2002.07.01., (AS, BG, NJ, VT); 2003.05.14., (ME, NJ) – NBA3-C: 2002.07.01., (AS, BG, NJ, VT) – NMM1-K: 2002.07.02., (AS, BG, NJ, VT) – NMM2-K: 2002.07.02., (AS, BG, NJ, VT) – NYU1-C: 2007.05.07., (NJ, ON) – NYU1-H: 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ); 2007.10.25., (ON, NJ) – NYU2-V: 2009.10.07., (BP) – PAK1-C: 1998.06.11., (CsG, NJ, ON); 1998.10.21., (CsG, NJ, ON) – PAK1-H: 1998.06.11., (CsG, NJ, ON) – PIL1-H: 1998.06.09., (CsG, NJ, ON); 1998.06.24., (NJ, ON); 1998.10.15., (NJ, ON); 2002.07.03., (AS, BG, NJ, VT); 2003.05.13., (ME, NJ) – PIL1-HD: 2001.05.08., (BE, CsG, NJ, ON); 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ); 2007.10.25., (ON, NJ) – RAC1-HD: 2001.05.23., (BE, CsG, NJ, ON) – RAC2-K: 2005.06.23., (NJ, ON); 2005.09.15., (NJ, ON) – RAC3-K: 2005.06.23., (NJ, ON); 2005.09.15., (NJ, ON) – RAC4-K: 2005.06.23., (NJ, ON) – RAJ1-K: 2003.07.22., (ME, NJ) – RAJ2-C: 2003.05.28., (AS, BG, CsZ, NJ, VT) – RAJ2-D: 2003.05.28., (AS, BG, CsZ, NJ, VT) – RAJ2-H: 2003.05.28., (AS, BG, CsZ, NJ, VT); 2003.09.10., (BG, CsZ, NJ, ON) – RAJ2-K: 2003.09.10., (BG, CsZ, NJ, ON) – RAJ6-V: 2009.09.15., (BP) – RAJ7-V: 2009.09.15., (BP) – SCH1-K: 2003.09.09., (BG, CsZ, NJ, ON); 2007.07.23., (NJ, ME) – SCH2-K: 1998.06.22., (NJ, ON); 1998.09.01., (NJ, ON); 1998.10.14., (NJ, ON); 1999.06.08., (NJ); 2001.10.09., (NJ) – SCH3-K: 2004.09.15., (NJ) – SCH4-K: 2003.07.25., (ME, NJ); 2004.07.23., (ME, NJ); 2007.09.17., (NJ, ME) – SCH6-K: 2004.09.15., (NJ) – SCH7-K: 2004.09.15., (NJ) – SCH8-K: 2004.09.15., (NJ) – SCS1-K: 2005.09.14., (NJ, ON) – SMA1-K: 2005.06.23., (NJ, ON); 2005.09.14., (NJ, ON) – SUR1-H: 1998.05.27., (CsG, ON) – SUR2-C: 1998.05.27., (CsG, ON) – SUT1-C: 1998.06.09., (CsG, NJ, ON) – SUT1-H: 1998.06.09., (CsG, NJ, ON); 1998.10.15., (NJ, ON); 2002.07.02., (AS, BG, NJ, VT); 2002.09.23., (NJ, ON); 2003.05.13., (ME, NJ); 2007.10.25., (ON, NJ) – SUT1-HC: 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ) – SUT1-HD: 2001.05.08., (BE, CsG, NJ, ON) – SUT2-H: 2002.07.02., (AS, BG, NJ, VT) – SZB3-K: 2005.06.23., (NJ, ON); 2005.09.15., (NJ, ON) – SZC1-D: 2003.07.22., (ME, NJ); 2003.09.10., (BG, CsZ, NJ, ON) – SZC2-K: 2003.07.23., (ME, NJ) – SZC3-K: 2003.07.23., (ME, NJ) – SZL2-H: 2002.07.04., (AS, MJ, NJ, ON); 2002.09.25., (NJ, ON) – SZM3-HD: 2001.05.25., (BE, CsG, NJ, ON) – SZN1-H: 2002.07.05., (CsG, ET, NJ, ON); 2003.05.13., (ME, NJ) – SZO1-H: 2003.05.13., (ME, NJ); 2007.10.25., (ON, NJ) – SZO1-HD: 2001.05.25., (BE, CsG, NJ, ON); 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ) – SZO2-C: 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ); 2007.10.25., (ON, NJ) – SZU1-HD: 2001.05.23., (BE, CsG, NJ, ON) – TAH1-H: 2002.07.05., (CsG, ET, NJ, ON); 2002.09.25., (NJ, ON) – TAS1-C: 2001.05.23., (BE, CsG, NJ, ON) – TAS2-H: 2001.05.23., (BE, CsG, NJ, ON) – TAS2-K: 2005.09.15., (NJ, ON) – TAT1-D: 1998.06.09., (CsG, NJ, ON) – TAT1-H: 1998.06.09., (CsG, NJ, ON) – TAT1-HD: 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ); 2007.10.25., (ON, NJ) – TAT4-D: 2002.07.03., (AS, BG, NJ, VT) – TAT5-D: 2002.07.03., (AS, BG, NJ, VT) – TEJ1-K: 2003.05.27., (AS, BG, CsZ, NJ, VT) – TEJ2-D: 2003.07.25., (ME, NJ) – TEJ2-K: 2003.07.25., (ME, NJ) – VAC1-D: 2002.07.04., (AS, MJ, NJ, ON); 2003.05.13., (ME, NJ) – VAC1-H: 1998.05.27., (CsG, ON) – VAC2-C: 1998.05.27., (CsG, ON); 2002.07.04., (AS, MJ, NJ, ON); 2003.05.13., (ME, NJ) – VAC3-H: 2003.05.13., (ME, NJ) – VED1-D: 2005.06.16., (BG, CsZ, NJ, ON, VT) – VEN1-D: 2002.07.01., (AS, BG, NJ, VT) – VEN1-DC: 2001.05.07., (BE, CsG, NJ, ON) – VIS1-HD: 2001.05.25., (BE, CsG, NJ, ON) – VPF1-D: 2003.07.22., (ME, NJ) – VSZ1-H: 2002.07.05., (CsG, ET, NJ, ON) – ZAT1-D: 2003.07.23., (ME, NJ) – ZAT1-K: 2003.07.23., (ME, NJ) – ZAT2-C: 1994.07.18., (NJ); 1996.06.20., (NJ); 1996.07.30., (NJ); 1996.09.17., (NJ); 1997.10.14., (NJ); 1998.04.20., (NJ); 1998.06.22., (NJ, ON); 1998.09.01., (NJ, ON); 1998.10.14., (NJ, ON); 1999.06.08., (NJ); 1999.07.13., (NJ); 1999.08.31., (NJ); 1999.10.27., (NJ); 2001.07.02., (NJ); 2001.09.05., (NJ); 2001.10.09., (NJ); 2002.06.11., (NJ); 2002.07.09., (NJ); 2002.10.07., (NJ); 2003.05.30., (AS, BG, CsZ, NJ); 2003.07.22., (ME, NJ); 2006.09.25., (NJ); 2007.09.17., (NJ, ME); 2008.07.16., (NJ, ME); 2008.09.24., (NJ, ME); 2009.09.09., (NJ, ME) – ZAT2-K: 2007.05.16., (NJ) – ZAT3-K: 1998.06.22., (NJ, ON); 1999.06.08., (NJ); 1999.07.13., (NJ); 1999.08.31., (NJ); 1999.10.27., (NJ); 2001.10.09., (NJ); 2002.06.11., (NJ); 2003.05.30., (AS, BG, CsZ, NJ); 2003.07.22., (ME, NJ) – ZAT4-K: 1996.09.17., (NJ); 1998.09.01., (NJ, ON) – ZSC1-K: 2003.07.24., (ME, NJ)

*Obesogammarus obesus* (Sars, 1894) – ADO1-HD: 2001.05.22., (BE, CsG, NJ, ON) – ALF1-H: 2002.07.02., (AS, BG, NJ, VT) – ALF1-HC: 2007.05.07., (ON, NJ); 2007.05.17., (BE, BP, NJ, ON); 2007.07.31., (ON, NJ) –

ALM1-D: 2007.05.07., (ON, NJ); 2007.10.25., (ON, NJ) – ALM1-HD: 2007.07.30., (ON, NJ) – ASV6-CD: 2007.05.15., (NJ) – CIK1-K: 2004.07.23., (ME, NJ) – CSA2-CK: 2002.07.09., (NJ) – CSA4-D: 2006.09.25., (NJ) – CSA9-D: 2004.09.15., (NJ) – CSK2-K: 2004.09.15., (NJ) – DBO1-HD: 2001.05.25., (BE, CsG, NJ, ON) – DFL1-HD: 2001.05.22., (BE, CsG, NJ, ON) – DKI0-D: 2008.09.24., (NJ, ME) – DKI0-K: 2007.07.23., (NJ, ME) – DKII-H: 2003.05.30., (AS, BG, CsZ, NJ); 2003.07.22., (ME, NJ); 2003.09.08., (BG, CsZ, NJ, ON) – DKI1-HDC: 2001.05.07., (BE, CsG, NJ, ON) – DKI2-C: 2004.07.24., (ME, NJ) – DRE2-C: 2001.07.02., (NJ); 2008.07.17., (NJ, ME) – DUF3-K: 2002.09.17., (NJ); 2003.09.08., (BG, CsZ, NJ, ON) – DUF4-C: 2003.09.08., (BG, CsZ, NJ, ON) – DUJ1-HD: 2001.05.22., (BE, CsG, NJ, ON) – ERC1-HD: 2001.05.22., (BE, CsG, NJ, ON) – ERM1-K: 2002.07.02., (AS, BG, NJ, VT) – ERM2-HD: 2007.05.17., (BE, BP, NJ, ON); 2007.07.31., (ON, NJ) – ESZ1-H: 2002.07.03., (AS, BG, NJ, VT); 2002.09.24., (NJ, ON); 2003.05.13., (ME, NJ) – ESZ2-D: 2007.05.07., (ON, NJ); 2007.07.30., (ON, NJ); 2007.10.25., (ON, NJ) – ESZ3-HD: 2007.05.07., (ON, NJ); 2007.07.30., (ON, NJ); 2007.10.25., (ON, NJ) – FEK1-D: 2003.09.10., (BG, CsZ, NJ, ON) – FEK1-H: 2003.05.28., (AS, BG, CsZ, NJ, VT) – FOM1-D: 2007.07.30., (ON, NJ) – GOD1-H: 1999.08.17., (ON); 1999.09.07., (ON); 1999.09.28., (ON); 1999.10.19., (ON); 1999.11.09., (ON); 2000.05.09., (ON); 2000.07.10., (ON); 2000.10.24., (ON); 2000.11.14., (ON); 2001.02.06., (ON); 2001.02.27., (ON); 2001.03.21., (ON) – GOD1-Mh-AF: 2000.05.09., (ON, NJ) – GOD2-H: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOD2-S: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOD6-H: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOD6-S: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOD7-H: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOD7-S: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOM4-H: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOM4-S: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GON1-H: 1998.09.02., (NJ, ON); 2002.07.02., (AS, BG, NJ, VT); 2002.09.23., (NJ, ON); 2003.05.14., (ME, NJ); 2007.10.26., (ON, NJ) – GON1-HD: 2007.07.31., (ON, NJ) – GON1-V: 2009.09.16., (BP) – GON2-HD: 2007.05.17., (BE, BP, NJ, ON) – GOS1-D: 2003.07.26., (ME, NJ); 2003.09.08., (BG, CsZ, NJ, ON) – HAM1-D: 2003.07.23., (ME, NJ) – HAR1-HD: 2001.08.16., (BE, CsG, NJ, ON) – HRT1-HD: 2001.05.23., (BE, CsG, NJ, ON) – KIM1-D: 1998.05.27., (CsG, ON) – KIM1-G: 1998.05.27., (CsG, ON) – KIM1-H: 1998.05.27., (CsG, ON); 2002.07.04., (AS, MJ, NJ, ON) – KIM1-HD: 2001.05.25., (BE, CsG, NJ, ON) – KOM2-HD: 2007.10.26., (ON, NJ) – KOP1-H: 1998.10.15., (NJ, ON) – KOP1-H: 2002.07.02., (AS, BG, NJ, VT); 2002.09.23., (NJ, ON); 2003.05.14., (ME, NJ) – KOP1-HD: 2001.05.08., (BE, CsG, NJ, ON) – LIP4-K: 2008.07.17., (NJ, ME) – LUP1-HD: 2001.05.08., (BE, CsG, NJ, ON) – MED1-C: 2002.07.01., (AS, BG, NJ, VT) – MED1-H: 2001.05.07., (BE, CsG, NJ, ON) – MMO1-D: 2003.05.28., (AS, BG, CsZ, NJ, VT) – MMO1-K: 2003.05.28., (AS, BG, CsZ, NJ, VT) – MOH2-H: 2008.10.08., (BP) – NAG1-H: 2002.07.04., (AS, MJ, NJ, ON); 2003.05.13., (ME, NJ) – NAG1-HD: 2001.05.25., (BE, CsG, NJ, ON) – NAG2-H: 2002.07.04., (AS, MJ, NJ, ON) – NBA2-H: 2002.07.01., (AS, BG, NJ, VT); 2003.05.14., (ME, NJ) – NMM1-K: 2002.07.02., (AS, BG, NJ, VT) – NMM2-K: 2002.07.02., (AS, BG, NJ, VT) – NYU1-C: 2007.05.07., (NJ, ON) – NYU1-H: 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ); 2007.10.25., (ON, NJ) – NYU2-V: 2009.10.07., (BP) – PAK1-C: 1998.06.11., (CsG, NJ, ON) – PAK1-D: 1998.06.11., (CsG, NJ, ON) – PIL1-H: 2002.07.03., (AS, BG, NJ, VT); 2002.09.24., (NJ, ON); 2003.05.13., (ME, NJ) – PIL1-HD: 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ); 2007.10.25., (ON, NJ) – RAJ2-H: 2003.09.10., (BG, CsZ, NJ, ON) – SCH4-K: 2008.09.24., (NJ, ME) – SUT1-H: 2002.07.02., (AS, BG, NJ, VT) – SUT1-HC: 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ) – SUT2-H: 2002.07.02., (AS, BG, NJ, VT) – SZL1-H: 1998.05.27., (CsG, ON) – SZL2-H: 2002.09.25., (NJ, ON) – SZO1-H: 2003.05.13., (ME, NJ); 2007.10.25., (ON, NJ) – SZO1-HD: 2001.05.25., (BE, CsG, NJ, ON); 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ) – SZU1-HD: 2001.05.23., (BE, CsG, NJ, ON) – TAH1-H: 2002.07.05., (CsG, ET, NJ, ON); 2002.09.25., (NJ, ON) – TAT1-H: 1998.06.09., (CsG, NJ, ON) – TAT1-HD: 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ); 2007.10.25., (ON, NJ) – TAT4-D: 2002.07.03., (AS, BG, NJ, VT) – TAT5-D: 2002.07.03., (AS, BG, NJ, VT) – TEJ2-D: 2003.07.25., (ME, NJ) – VAC1-D: 2002.07.04., (AS, MJ, NJ, ON); 2003.05.13., (ME, NJ) – VAC3-H: 2003.05.13., (ME, NJ) – VED1-D: 2004.08.25., (ME, NJ) – VEN2-H: 2002.07.01., (AS, BG, NJ, VT) – VIS1-HD: 2001.05.25., (BE, CsG, NJ, ON) – VPFI-D: 2003.07.22., (ME, NJ) – VSZ1-H: 2002.07.05., (CsG, ET, NJ, ON) – ZAT1-D: 2003.07.23., (ME, NJ) – ZAT1-K: 2003.07.23., (ME, NJ)

***Chelicorophium curvispinum*** (G.O. Sars, 1895) – AKA1-V: 2009.10.21., (BP) – AKA2-V: 2009.10.21., (BP) – ALF1-HC: 2007.07.31., (ON, NJ) – ASV1-C: 1994.05.17., (NJ) – ASV3-D: 2003.09.09., (BG, CsZ, NJ, ON) – ASV3-K: 2003.09.09., (BG, CsZ, NJ, ON) – ASV6-C: 2003.09.09., (BG, CsZ, NJ, ON) – BAG1-D: 2003.07.26., (ME, NJ) – BAG2-D: 2003.09.09., (BG, CsZ, NJ, ON) – BAG2-K: 2003.09.09., (BG, CsZ, NJ, ON) – BAJ2-H: 1998.10.21., (CsG, NJ, ON) – BOD2-H: 2003.09.08., (BG, CsZ, NJ, ON) – BOD2-K: 1999.06.08., (NJ); 2001.10.09., (NJ) – CIK1-K: 2004.07.23., (ME, NJ) – CIK2-K: 1999.08.31., (NJ); 1999.10.27., (NJ); 2006.09.26., (NJ)

– CIK5-K: 2004.07.24., (ME, NJ) – CIK7-K: 2004.07.24., (ME, NJ) – CSA1-C: 1996.06.20., (NJ); 2004.07.23., (ME, NJ); 2008.09.24., (NJ, ME) – CSA2-C: 1998.09.01., (NJ, ON); 1999.10.27., (NJ) – CSA4-K: 2004.07.23., (ME, NJ) – CSA5-C: 2004.09.15., (NJ) – CSA7-C: 2004.09.15., (NJ) – CSA8-K: 2004.09.15., (NJ) – CSP2-V: 2009.10.19., (BP) – DFL1-H: 1998.10.21., (CsG, NJ, ON) – DIS1-K: 2004.09.15., (NJ) – DKI0-D: 2007.07.23., (NJ, ME) – DKI0-K: 2007.07.23., (NJ, ME) – DKI1-H: 1998.06.22., (NJ, ON); 1998.09.01., (NJ, ON); 2003.05.30., (AS, BG, CsZ, NJ) – DKI1-HDC: 2001.05.07., (BE, CsG, NJ, ON) – DKI2-C: 1998.10.14., (NJ, ON); 1999.08.31., (NJ); 1999.10.27., (NJ); 1999.10.28., (NJ); 2002.09.17., (NJ); 2003.05.30., (AS, BG, CsZ, NJ); 2003.09.08., (BG, CsZ, NJ, ON); 2004.07.24., (ME, NJ); 2008.09.24., (NJ, ME) – DKI2-H: 1999.10.27., (NJ) – DKI3-C: 1994.05.17., (NJ); 1994.07.18., (NJ) – DKI4-D: 2003.07.22., (ME, NJ) – DKI5-K: 2003.07.22., (ME, NJ) – DKI6-C: 2003.07.22., (ME, NJ) – DOB1-K: 2004.07.23., (ME, NJ) – DRE2-C: 1998.06.22., (NJ, ON); 1998.09.01., (NJ, ON); 1999.06.08., (NJ); 1999.07.13., (NJ); 1999.08.31., (NJ); 1999.10.27., (NJ); 2001.07.02., (NJ); 2001.09.05., (NJ); 2001.10.09., (NJ); 2002.07.09., (NJ); 2003.07.24., (ME, NJ); 2003.09.08., (AS, BG, CSZ, NJ); 2008.09.15., (NJ, ME) – DRE2-CH: 2001.05.07., (BE, CsG, NJ, ON) – DRE6-V: 2009.09.15., (BP) – DSG1-D: 2003.05.28., (AS, BG, CsZ, NJ, VT) – DSG1-H: 2003.05.28., (AS, BG, CsZ, NJ, VT) – DSZ1-H: 1998.10.21., (CsG, NJ, ON) – DUF0-C: 1998.09.01., (NJ, ON); 2001.07.02., (NJ); 2003.09.08., (BG, CsZ, NJ, ON) – DUF0-K: 1995.09.13., (NJ); 1999.06.08., (NJ); 1999.08.31., (NJ); 1999.10.27., (NJ) – DUF1-H: 1998.06.22., (NJ, ON); 1998.09.01., (NJ, ON) – DUF2-C: 1998.09.01., (NJ, ON) – DUF3-K: 1998.09.01., (NJ, ON); 1999.08.31., (NJ); 1999.10.27., (NJ); 2003.09.08., (BG, CsZ, NJ, ON) – DUF4-C: 1998.09.01., (NJ, ON); 1999.06.08., (NJ); 1999.08.31., (NJ); 1999.10.27., (NJ); 2003.07.25., (ME, NJ) – DUF5-HD: 2001.05.07., (BE, CsG, NJ, ON) – DUH5-D: 2005.09.14., (NJ, ON) – DUJ1-HD: 2001.05.22., (BE, CsG, NJ, ON) – ERM1-K: 2002.07.02., (AS, BG, NJ, VT) – ERM2-HD: 2007.07.31., (ON, NJ) – ESZ1-H: 1998.06.24., (NJ, ON); 2002.07.03., (AS, BG, NJ, VT) – ESZ2-HD: 2001.05.08., (BE, CsG, NJ, ON) – ESZ3-HD: 2007.05.07., (ON, NJ); 2007.07.30., (ON, NJ) – ESZ4-V: 2009.10.07., (BP) – FEK1-D: 2003.09.10., (BG, CsZ, NJ, ON) – FEK1-H: 2003.05.28., (AS, BG, CsZ, NJ, VT) – GOD1-H: 2000.11.14., (ON); 2001.03.21., (ON) – GOD2-H: 2006.10.25., (BE, BP, NJ, ON) – GOD2-S: 2005.11.08., (NJ, ON) – GOD6-H: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOD7-H: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOD7-S: 2006.07.18., (BE, BP, NJ, ON) – GOD9-V: 2009.10.12., (BP) – GOM4-H: 2006.07.18.., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GOM4-S: 2006.07.18., (BE, BP, NJ, ON); 2006.10.25., (BE, BP, NJ, ON) – GON1-C: 1998.09.02., (NJ, ON); 2007.05.17., (BE, BP, NJ, ON) – GON1-H: 1998.09.02., (NJ, ON); 2002.07.02., (AS, BG, NJ, VT) – GOS1-D: 2003.07.26., (ME, NJ) – HAL0-C: 1998.09.01., (NJ, ON) – HAL1-H: 1998.07.30., (CsG, ON) – HAL4-C: 1998.07.30., (CsG, ON) – HED2-K: 2004.07.26., (ME, NJ) – HTV1-K: 2004.07.25., (ME, NJ) – KIB1-K: 2003.07.27., (ME, NJ) – KIM1-G: 1998.05.27., (CsG, ON) – KIM1-H: 2002.07.04., (AS, MJ, NJ, ON) – KOM1-V: 2009.10.07., (BP) – KOM2-H: 2007.05.17., (BE, BP, NJ, ON); 2007.07.31., (ON, NJ) – KOM2-V: 2009.10.27., (BP) – KOP1-H: 1998.06.23., (NJ, ON); 2002.07.02., (AS, BG, NJ, VT) – LIP3-K: 1998.10.15., (NJ, ON); 2001.07.02., (NJ); 2001.10.09., (NJ); 2003.05.29., (AS, BG, CsZ, NJ); 2007.05.16., (NJ); 2007.07.24., (NJ, ME); 2007.09.17., (NJ, ME); 2008.09.25., (NJ, ME) – MAK1-K: 2005.06.23., (NJ, ON) – MAK2-K: 2005.09.15., (NJ, ON) – MEC1-HDC: 2001.05.07., (BE, CsG, NJ, ON) – MED1-C: 2002.07.01., (AS, BG, NJ, VT) – MOH2-H: 2008.10.08., (BP) – NAG1-H: 2003.05.13., (ME, NJ) – NAG3-V: 2009.10.07., (BP) – NMM1-K: 2002.07.02., (AS, BG, NJ, VT) – NYU1-H: 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ) – PAK1-HD: 2001.05.22., (BE, CsG, NJ, ON) – PIL1-HD: 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ) – RAC2-K: 2005.06.23., (NJ, ON); 2005.09.15., (NJ, ON) – RAC4-K: 2005.06.23., (NJ, ON) – RAJ2-C: 2003.05.28., (AS, BG, CsZ, NJ, VT) – RAJ2-D: 2003.05.28., (AS, BG, CsZ, NJ, VT) – RAJ2-H: 2003.05.28., (AS, BG, CsZ, NJ, VT); 2003.09.10., (BG, CsZ, NJ, ON) – RAJ7-V: 2009.09.15., (BP) – SCH1-K: 2003.09.09., (BG, CsZ, NJ, ON) – SCH2-K: 1998.09.01., (NJ, ON) – SCH6-K: 2004.09.15., (NJ) – SCH7-K: 2004.09.15., (NJ) – SUT1-H: 1998.06.09., (CsG, NJ, ON); 2003.05.13., (ME, NJ) – SUT1-HC: 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ) – SZB3-K: 2005.06.23., (NJ, ON); 2005.09.15., (NJ, ON) – SZC1-D: 2003.07.22., (ME, NJ); 2003.09.10., (BG, CsZ, NJ, ON) – SZO2-C: 2007.05.07., (NJ, ON) – SZU1-HD: 2001.05.23., (BE, CsG, NJ, ON) – TAT1-D: 1998.06.09., (CsG, NJ, ON) – TAT1-HD: 2007.05.07., (NJ, ON) – TAT3-H: 2002.07.03., (AS, BG, NJ, VT); 2003.05.13., (ME, NJ) – TAT5-D: 2002.07.03., (AS, BG, NJ, VT) – TEJ2-K: 2003.07.25., (ME, NJ) – VAC2-C: 1998.05.27., (CsG, ON) – VAC4-C: 2003.05.13., (ME, NJ) – VED1-D: 2005.06.16., (BG, CsZ, NJ, ON, VT) – VEN1-DC: 2001.05.07., (BE, CsG, NJ, ON) – VEN2-H: 2002.09.23., (NJ, ON) – VEN3-K: 2002.09.23., (NJ, ON) – ZAT1-K: 2003.07.23., (ME, NJ) – ZAT2-C: 1998.06.22., (NJ, ON); 1998.09.01., (NJ, ON); 1998.10.14., (NJ, ON); 1999.06.08., (NJ); 1999.07.13., (NJ); 1999.08.31., (NJ); 1999.10.27., (NJ); 2002.06.11., (NJ); 2002.07.09., (NJ); 2002.10.07., (NJ); 2003.07.22., (ME, NJ); 2003.09.08., (BG, CsZ, NJ, ON); 2008.09.24., (NJ, ME); 2009.09.09., (NJ, ME) – ZAT4-K: 1998.09.01., (NJ, ON)

***Chelicorophium robustum*** (G.O. Sars, 1895) – DKI0 -V: 2009.09.15., (BP) – ESZ4-V: 2009.10.07., (BP) – GON1-V: 2009.09.16., (BP) – KOM1-V: 2009.10.07., (BP) – KOM2-V: 2009.10.27., (BP) – MED2-V: 2009.09.16., (BP) – NAG3-V: 2009.10.07., (BP) – NYU1-H: 2007.07.30., (ON, NJ) – NYU2-V: 2009.10.07., (BP)

***Chelicorophium sowinskyi* (Martynov, 1924)** – ALF1-HC: 2007.07.31., (ON, NJ) – ALM1-H: 1998.10.15., (NJ, ON) – ASV3-K: 2003.09.09., (BG, CsZ, NJ, ON) – BOD2-K: 2003.07.25., (ME, NJ) – CIK2-K: 2006.09.26., (NJ) – CSA1-C: 2004.07.23., (ME, NJ); 2008.09.24., (NJ, ME) – CSA2-CK: 1998.09.01., (NJ, ON); 1999.10.27., (NJ); 2009.09., (NJ, ME) – CSA4-K: 2008.09.24., (NJ, ME) – DKI0-K: 2008.07.16., (NJ, ME) – DKI0 -D: 2007.07.23., (NJ, ME); 2008.09.24., (NJ, ME) – DKI0 -K: 2007.07.23., (NJ, ME); 2009.09.09., (NJ, ME) – DKI0 -V: 2009.09.15., (BP) – DKI1-H: 1998.06.22., (NJ, ON); 2003.09.08., (BG, CsZ, NJ, ON) – DKI1-HDC: 2001.05.07., (BE, CsG, NJ, ON) – DKI2-C: 1999.07.13., (NJ); 2008.07.16., (NJ, ME); 2008.09.24., (NJ, ME) – DKI3-C: 1999.07.13., (NJ); 1999.08.31., (NJ) – DRE2-C: 2001.09.05., (NJ); 2003.09.08., (AS, BG, CSZ, NJ); 2009.09.10., (NJ, ME) – DRE3-C: 2003.07.24., (ME, NJ) – DRE6-V: 2009.09.15., (BP) – DSG1-H: 2003.05.28., (AS, BG, CsZ, NJ, VT) – DUF0 -C: 1998.09.01., (NJ, ON) – DUF0 -K: 1999.08.31., (NJ) – DUF1-H: 1998.09.01., (NJ, ON) – DUF4-C: 1998.09.01., (NJ, ON); 1999.10.27., (NJ); 2003.09.08., (BG, CsZ, NJ, ON) – ERM2-HD: 2007.07.31., (ON, NJ) – ESZ1-H: 1998.06.24., (NJ, ON) – ESZ3-HD: 2007.10.25., (ON, NJ) – ESZ4-V: 2009.10.07., (BP) – FEK1-D: 2003.09.10., (BG, CsZ, NJ, ON) – GOD1-H: 2000.11.14., (ON); 2001.03.21., (ON) – GOD6-H: 2006.07.18., (BE, BP, NJ, ON) – GON1-C: 2007.05.17., (BE, BP, NJ, ON) – GON1-H: 1998.09.02., (NJ, ON) – GON2-HD: 2001.05.08., (BE, CsG, NJ, ON) – GOS1-D: 2003.07.26., (ME, NJ) – HAM1-HC: 2001.05.07., (BE, CsG, NJ, ON) – KIM1-D: 1998.05.27., (CsG, ON) – KIM1-H: 1998.05.27., (CsG, ON); 2002.07.04., (AS, MJ, NJ, ON) – KOM1-V: 2009.10.07., (BP) – KOM2-V: 2009.10.27., (BP) – KOP1-H: 2002.07.02., (AS, BG, NJ, VT) – KOP1-HD: 2007.05.17., (BE, BP, NJ, ON) – MEC1-H: 2003.05.28., (AS, BG, CsZ, NJ, VT) – MEC1-HDC: 2001.05.07., (BE, CsG, NJ, ON) – MEC1-K: 2003.05.28., (AS, BG, CsZ, NJ, VT) – MMO1-K: 2003.05.28., (AS, BG, CsZ, NJ, VT) – PIL1-H: 1998.06.24., (NJ, ON); 2002.07.03., (AS, BG, NJ, VT); 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ) – RAJ2-C: 2003.05.28., (AS, BG, CsZ, NJ, VT) – RAJ2-H: 2003.05.28., (AS, BG, CsZ, NJ, VT) – SCH4-K: 2008.09.24., (NJ, ME) – SUT1-HC: 2007.05.07., (NJ, ON); 2007.07.30., (ON, NJ) – SZO1-HD: 2001.05.25., (BE, CsG, NJ, ON) – TAH1-H: 2002.09.25., (NJ, ON); 1998.06.09., (CsG, NJ, ON) – TAT3-H: 2002.07.03., (AS, BG, NJ, VT) – TEJ2-K: 2003.07.25., (ME, NJ) – VPF1-D: 2003.07.22., (ME, NJ) – ZAT1-K: 2003.07.23., (ME, NJ) – ZAT2-C: 1999.08.31., (NJ); 1999.10.27., (NJ); 2008.09.24., (NJ, ME)

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## References

- BORZA, P. (2009): First record of the Ponto-Caspian amphipod *Echinogammarus trichiatus* (Martynov, 1932) (=*Chaetogammarus trichiatus*) (Crustacea: Amphipoda) for the Middle-Danube (Slovakia and Hungary). – Aquatic Invasions 4(4): 693–696.
- CARAUSU, S., DOBREANU, E. & MANOLACHE, C. (1955): Amphipoda. Forme salmastre si de apa dulce. In Fauna Republicii Populare Române. Crustacea Fasc. 4. – Editura Academiei Republicii Populare Române 407. pp.
- DUDICH, E. (1955): Rákok – Crustacea. In: Móczár László (szerk.) Állathatározó. – Közoktatásügyi Kiadóvállalat, Budapest pp. 55–73.
- EGGERS, T. O. & MARTENS, A. (2001): Bestimmungsschlüssel der Süßwasser-Amphipoda (Crustacea) Deutschlands. – Lauterbornia 42: 1–68.
- EGGERS, T. O. & MARTENS, A. (2004): Ergänzungen und Korrekturen zum „Bestimmungsschlüssel der Süßwasser-Amphipoda (Crustacea) Deutschlands“. – Lauterbornia 50: 1–13.
- JAZDZEWSKI, K. & KONOPACKA, A. (1996): Remarks on the morphology, taxonomy and distribution of *Corophium curvispinum* G. O. Sars, 1895 and *Corophium sowinskyi* Martynov, 1924 (Crustacea, Amphipoda, Corophiidae). Boll. Mus. civ. Storia nat. Verona 20: 487–501.
- KONTSCHÁN, J., MUSKÓ, I. B. & MURÁNYI, D. (2002): A felszíni vizekben előforduló felemáslábjú rákok (Crustacea: Amphipoda) rövid határozója és előfordulásuk Magyarországon. – Folia Historico-naturalia Musei Matraensis 25: 151–157.

- MUSKÓ, I. B. (2007): Checklist of Hungarian Malacostraca. Version 2007. 10. 25. – [http://www.freeweb.hu/mavige/dokument/hungarian\\_malacostraca\\_checklist.pdf](http://www.freeweb.hu/mavige/dokument/hungarian_malacostraca_checklist.pdf)
- NOSEK, J. N. (2007): Contribution to the macroinvertebrate fauna of the Hungarian Danube. I. Introduction, sampling sites and methods. – *Folia Historico-naturalia Musei Matraensis* 31: 15–41.
- OERTEL, N. (2000): Macroinvertebrate Studies at the Hungarian Danube Section 1. Fundamental and Methodological Questions of Biomonitoring. – *Internat. Assoc. Danube Res.* 33: 271–278.
- OERTEL, N. (2002): Macroinvertebrate studies at the Hungarian Danube section 3. Artificial substrate as a tool to study macroinvertebrate colonization. – *Internat. Assoc. Danube Res.* 34: 327–336.
- OERTEL, N. & NOSEK, J. N. (2004): Comparative analysis of quantitative macroinvertebrate sampling techniques. – *Internat. Assoc. Danube Res.* 35:173–180.
- OERTEL, N. & NOSEK, J. N. (2006): Sampling of macroinvertebrates by artificial substrates in the River Danube (Hungary). – *Verh. Internat. Verein. Limnol.* 29: 1762–1766.

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