

Supplement

Table S1. Species list and frequency of planktonic crustacean in water bodies of Kurungnakh and Argaa-Bilir-Aryata Islands (southern part of the Lena River Delta) in July–August 2017 and 2020 (*—species noted in the first time)

Taxons	Frequency (Number of water bodies)	Lakes	Complex polygon ponds	Single polygon ponds	Oxbow
Class Branchiopoda Latreille, 1817					
Order Anostraca Sars, 1867					
Family Chirocephalidae Daday, 1910					
<i>Polyartemia forcipata</i> (Fischer, 1851)	3	+	-	-	-
Family Branchinectidae Daday, 1910					
<i>Branchinecta paludosa</i> (Müller O.F., 1788)	16	+	+	+	-
Superorder Cladocera Latreille, 1829					
Order Ctenopoda Sars, 1865					
Family Holopedidae Sars, 1865					
<i>Holopedium gibberum</i> Zaddach, 1855	1	+	-	-	-
Family Sididae Baird, 1850					
<i>Sida crystallina</i> (Müller O.F., 1776)	3	+	-	-	-
Order Anomopoda					
Family Bosminidae Baird, 1845					
<i>Bosmina longirostris</i> (Müller O.F., 1785)	8	+	+	-	+
<i>B. cf. longispina</i> (Müller O.F., 1785)	4	+	+	+	-
Family Chydoridae Dybowski & Grochowski, 1894					
<i>Acroperus harpae</i> (Baird, 1834)	7	+	+	+	+
<i>Alona guttata</i> Sars G.O., 1862	10	+	+	+	-
* <i>A. quadrangularis</i> (Müller O.F., 1776)	6	+	+	+	+
<i>Alonopsis elongatus</i> Sars G.O., 1862	19	+	+	+	-
<i>Biapertura affinis</i> (Leydig, 1860)	11	+	+	+	-
<i>Chydorus cf. sphaericus</i> (Müller O.F., 1785)	27	+	+	+	+
* <i>Paralona pigra</i> Sars G.O., 1862	2	+	-	-	-
<i>Pleuroxus cf. trigonellus</i> (Müller O.F., 1776)	5	+	-	+	-
Family Daphniidae Straus, 1820					
<i>Daphnia cucullata</i> Sars G.O., 1862	3	+	+	-	-
<i>D. cf. longispina</i> (Müller O.F., 1776)	15	+	+	+	+
<i>D. cf. pulex</i> Leydig, 1860	6	+	+	+	-
Family Euryceridae Kurz, 1875					
<i>Eurycerus lamellatus</i> (O.F. Müller, 1776)	5	+	+	+	+
Subclass Copepoda Milne Edwards, 1840					
Order Calanoida Sars, 1903					
Family Temoridae Giesbrecht, 1893					
<i>Eurytemora gracilicauda</i> Akatova, 1949	1	-	-	-	+
<i>E. gracilis</i> (Sars G.O., 1863)	6	+	+	-	-
<i>E. cf. raboti</i> Richard, 1897	1	-	+	-	-
<i>Hetercope borealis</i> (Fischer, 1851)	24	+	+	+	+
Family Diaptomidae Baird, 1850					
<i>Eudiaptomus graciloides</i> (Lilljeborg, 1888)	9	+	+	+	-
<i>Leptodiaptomus angustilobius</i> (Sars G.O., 1898)	18	+	+	+	-
<i>Mixodiaptomus theeli</i> (Lilljeborg in Guerne et Richard, 1889)	17	+	+	+	+
Order Cyclopoida Burmeister, 1834					
Family Cyclopidae Rafinesque, 1815					
<i>Acanthocyclops venustus</i> (Norman & Scott, 1906)	25	+	+	+	-

<i>A. vernalis vernalis</i> (Fischer, 1853)	13	+	+	+	-
<i>Cyclops scutifer scutifer</i> Sars G.O., 1863	13	+	+	+	-
<i>C. kolensis</i> Lilljeborg, 1901	19	+	+	+	+
<i>C. cf. strenuus</i> Fischer, 1851	16	+	+	+	+
<i>Diacyclops bicuspidatus</i> (Claus, 1857)	6	+	+	+	-
<i>D. crassicaudis</i> (Sars G.O., 1863)	8	+	-	+	+
<i>D. languidoides</i> (Lilljeborg, 1901)	13	+	+	+	+
<i>Eucyclops</i> gr. <i>serrulatus</i> (Fischer, 1851)	6	+	+	+	-
<i>Megacyclops gigas gigas</i> (Claus, 1857)	10	+	+	+	-
<i>M. viridis viridis</i> (Jurine, 1820)	12	+	+	+	-
<i>Mesocyclops leuckarti leuckarti</i> (Claus, 1857)	2	+	-	-	-
<i>Paracyclops fimbriatus fimbriatus</i> (Fischer, 1853)	5	+	+	+	+
Order Harpacticoida Sars, 1903					
Family Canthocamptidae Brady, 1880					
<i>Canthocamptus glacialis</i> (Lilljeborg, 1902)	5	+	-	+	-
Class Ostracoda Latreille, 1802					
Ostracoda spp.	6	+	+	+	+
Total species richness:		38	31	30	15

Table S2. Species list and frequency of macrozoobenthos in water bodies of Kurungnakh and Samoilovsky Islands (southern part of the Lena River Delta) in July–August 2020
(*—species noted in the first time)

Taxons	Frequency (number of water bodies)	Lakes	Complex polygon ponds	Single polygon ponds	Oxbow
Phylum Annelida Lamarck, 1802					
Class Clitellata Michaelsen, 1919					
Subclass Oligochaeta Grube, 1850					
Order Crassicitellata Jamieson, 1988					
* <i>Eiseniella tetraedra</i> (Savigny, 1826)	21	+	+	+	+
Order Tubificida Jamieson, 1978					
* <i>Alexandrovina ringulata</i> (Sokolskaja, 1961)	4	+	+		+
* <i>Embolecephalus velutinus</i> (Grube, 1879)	8	+	+		+
* <i>Limnodrilus</i> sp. Claparede, 1862	11	+	+	+	+
* <i>Nais</i> sp.	1	+			
* <i>Spirosperma ferox</i> Eisen, 1879	1			+	
<i>Tubifex tubifex</i> (Muller, 1774)	7	+	+		+
Order Enchytraeida Kasprzak, 1984					
Enchytraeidae spp.	1			+	
Subclass Hirudinea Savigny, 1822					
Order Rhynchobdellida Blanchard, 1894					
* <i>Piscicola geometra</i> Linnaeus, 1761	1	+			
Class Gastropoda Cuvier, 1795					
Superorder Hygrophila Férussac, 1822					
* <i>Gyraulus borealis</i> Lovén in Westerlund, 1875	4	+			+
* <i>Physa</i> cf. <i>bulla</i> (Müller, 1774)	9	+	+	+	+
<i>Sibirenauta sibirica</i> Westerlund, 1877	11	+	+	+	
Class Bivalvia Linnaeus, 1758					
Order Sphaeriida Lemer, Bieler & Giribet, 2019					
* <i>Euglesa casertana</i> Poli, 1791	1	+			
* <i>Henslowiana lilljeborgii</i> (Clessin in	2	+			+

Esmarket Hoyer, 1886)					
* <i>Roseana borealis</i> Clessin in Westerlund, 1877	1				+
Subclass Acari Leach, 1817					
Order Trombidiformes Reuter, 1909					
Hydrachnidia spp.	2	+			+
Subphylum Crustacea Brünnich, 1772					
Class Branchiopoda, 1817					
Order Anostraca Sars, 1867					
<i>Branchinecta paludosa</i> Müller, 1788	2	+	+		
Order Notostraca Sars, 1867					
<i>Lepidurus arcticus</i> Pallas, 1793	4	+	+		
Class Malacostraca Latreille, 1802					
Order Isopoda Latreille, 1816					
<i>Asellus hilgendorffii martynovi</i> Birstein, 1947	8	+	+		+
Order Amphipoda Latreille, 1816					
<i>Eosynurella jakutana</i> (Martynov, 1931)	11		+	+	
<i>Gammarus lacustris</i> G.O. Sars, 1863	1	+	+		+
* <i>Monoporeia affinis</i> Lindström, 1855	16				+
Class Hexapoda Latreille, 1825					
Subclass Insecta Linnaeus, 1758					
Order Ephemeroptera Hyatt et Arms, 1891					
* <i>Baetis macani</i> Kimmins, 1957	4	+	+	+	
Order Plecoptera Burmeister, 1839					
* <i>Nemoura arctica</i> Esben-Petersen, 1910	5	+			+
Order Trichoptera Kirby, 1813					
* <i>Agrypnia obsoleta</i> Hagen, 1864	4		+		
* <i>Dicosmoecus obscuripennis</i> Banks, 1938	10	+	+	+	+
<i>Grensia praeterita</i> Walker, 1852	10	+	+		+
* <i>Hydatophylax</i> sp.	2	+			+
* <i>Lenarchus</i> sp.	2		+	+	
* <i>Micrasema</i> gr. <i>gelidum</i> McLachlan, 1876	17	+	+	+	+
Order Coleoptera Linnaeus, 1758					
* <i>Agabus adpressus</i> Aube, 1837	1		+		
* <i>A. elongatus</i> Gyllenhal in C.R.Sahlberg, 1826	4			+	
* <i>Colymbetes dolabratus</i> Paykull 1798	6	+	+	+	
* <i>Gyrinus opacus</i> Sahlberg, 1817	2	+			
* <i>Hydroporus lapponum</i> Gyllenhal, 1808	1			+	
* <i>Hydroporus</i> sp.	1	+			
Order Diptera Linnaeus, 1758					
* <i>Acricotopus lucens</i> (Zetterstedt, 1850)	4			+	
* <i>Boreosimulium baffinensis</i> Twinn, 1936	1			+	
<i>Chironomus</i> sp.	11	+	+	+	+
* <i>Cladotanytarsus</i> gr. <i>mancus</i> (Walker, 1856)	4	+			+
* <i>Corynoneura scutellata</i> Winnertz, 1846	3	+	+		
* <i>Cricotopus fuscus</i> (Kieffer, 1909)	1	+			
<i>Cryptochironomus</i> gr. <i>defectus</i> Kieffer 1913	3		+		
* <i>Culiseta bergrothi</i> Edwards, 1921	1			+	
* <i>Derotanypus sibiricus</i> (Kruglova & Chernovskii, 1940)	1		+		
* <i>Dicrotendipes nervosus</i> (Staeger, 1839)	5		+	+	
* <i>D. septemmaculatus</i> (Becker, 1908)	5		+	+	

* <i>Endochironomus stackelbergi</i> Goetghebuer, 1935	2	+	+		
* <i>Euphyllidorea lineola</i> Meigen, 1804	1	+			
* <i>Glyptotendipes gripekoveni</i> (Kieffer, 1913).	1			+	
* <i>Heterotrissocladius</i> gr. <i>maeeri</i> Brundin, 1949	2	+			
* <i>H.</i> gr. <i>marcidus</i> (Walker, 1856)	1				+
* <i>Limnophyes</i> sp.	1	+			
* <i>Lipiniella araenicola</i> Shilova, 1961	2	+			
* <i>Metriocnemus atratulus</i> (Zetterstedt, 1850)	2		+		+
* <i>Oliveridia</i> sp.	1	+			
* <i>Orthocladius</i> sp. 1	2	+		+	
* <i>Orthocladius</i> sp. 2	1	+	+	+	
* <i>Orthocladius</i> sp. 3	8	+			
* <i>Orthocladius</i> sp. 4	3	+			
* <i>Paratanytarsus</i> sp.	1	+			
* <i>Phyllidorea nervosa</i> Schummel, 1829	1		+		
<i>Procladius</i> sp.	8	+	+	+	+
* <i>Psectrocladius obivus</i> (Walker, 1856)	1		+		
* <i>P. delatoris</i> Zelentsov, 1980	1	+			
* <i>P. fabricus</i> Zelentsov, 1980	5		+	+	
* <i>P. fennicus</i> Stora, 1939	3	+		+	
* <i>P. ventricosus</i> Kieffer, 1925	1	+			
* <i>P.</i> sp.	1			+	
* <i>Stictochironomus</i> sp.	11	+	+		+
* <i>Sympotthastia</i> sp.	6	+			+
* <i>Syndiamesa</i> sp.	2		+		
<i>Tanytarsus</i> sp.	4	+	+		
Total species richness:		48	36	27	25

Table S3. Species list and frequency of meiobenthic crustacean in water bodies of Kurungnakh and Argaa-Bilir-Aryata Islands (southern part of the Lena River Delta) in July–August 2017 and 2020 (*—species noted in the first time)

Taxons	Frequency (Number of water bodies)	Lakes	Complex polygon ponds	Single polygon ponds	Oxbow
Superorder Cladocera Latreille, 1829					
Order Anomopoda Sars, 1865					
Family Bosminidae Baird, 1845					
<i>Bosmina longirostris</i> (Müller O.F., 1785)	1	+	-	-	-
Family Chydoridae Dybowski & Grochowski, 1894					
<i>Acroperus harpae</i> (Baird, 1834)	1	-	-	+	-
<i>Alona guttata</i> Sars G.O., 1862	6	+	+	+	-
* <i>A. quadrangularis</i> (Müller O.F., 1776)	1	-	+	-	-
<i>Alonopsis elongatus</i> Sars G.O., 1862	1	+	-	-	-
<i>Biapertura affinis</i> (Leydig, 1860)	1	+	-	-	-
Aloninae juveniles	4	-	+	-	-
<i>Chydorus</i> cf. <i>sphaericus</i> (Müller O.F., 1785)	12	+	+	+	-
<i>Pleuroxus</i> cf. <i>trigonellus</i> (Müller O.F., 1776)	1	+	-	-	-
Family Daphniidae Straus, 1820					
<i>Daphnia</i> cf. <i>pulex</i> Leydig, 1860	2	-	-	+	-
Family Eurycercidae Kurz, 1875					
<i>Eurycercus</i> juveniles	1	-	-	-	+
Subclass Copepoda Milne Edwards, 1840					

Order Calanoida Sars, 1903					
Family Temoridae Giesbrecht, 1893					
<i>Heterocope borealis</i> (Fischer, 1851)	2	+	-	-	-
Order Cyclopoida Burmeister, 1834					
Family Cyclopidae Rafinesque, 1815					
<i>Acanthocyclops venustus</i> (Norman & Scott, 1906)	16	+	+	+	+
<i>A. vernalis vernalis</i> (Fischer, 1853)	8	+	+	+	-
<i>Cyclops</i> cf. <i>strenuus</i> Fischer, 1851	10	+	+	+	-
<i>Diacyclops crassicaudis</i> (Sars G.O., 1863)	3	+	-	-	+
<i>D. languidoides</i> (Lilljeborg, 1901)	6	+	+	+	+
<i>D. nanus</i> (Sars G.O., 1863)	2	+	+	-	-
<i>Eucyclops</i> gr. <i>serrulatus</i> (Fischer, 1851)	4	+	+	+	-
<i>Megacyclops viridis viridis</i> (Jurine, 1820)	7	-	+	+	-
<i>Paracyclops fimbriatus fimbriatus</i> (Fischer, 1853)	6	+	+	+	+
Order Harpacticoida Sars, 1903					
Family Canthocamptidae Brady, 1880					
<i>Attheyella dentata</i> (Poggenpool, 1874)	3	+	+	+	-
<i>Attheyella nordenskioldii</i> (Lilljeborg, 1902)	1	-	-	+	-
* <i>Attheyella</i> cf. <i>trispinosa</i> (Brady, 1880)	1	-	-	+	-
* <i>Bryocamptus arcticus</i> (Lilljeborg, 1902)	1	+	-	-	-
<i>B. vej dovskyi</i> (Mrazek, 1893)	3	+	-	+	-
<i>B. abramovae</i> (Novikov, Sharafutdinova, Chertoprud, 2022)	10	+	+	+	+
<i>B. sp. nov.</i>	2	+	-	-	-
<i>Canthocamptus glacialis</i> (Lilljeborg, 1902)	16	+	+	+	-
<i>Epactophanes richardi</i> Mrazek, 1893	2	+	-	-	-
<i>Maraenobiotus brucei</i> (Ricard, 1898)	6	+	+	+	-
<i>Moraria duthiei</i> (Scott, 1896)	18	+	+	+	-
<i>M. insularis</i> Fefilova, 2008	3	+	-	-	-
<i>M. mrazeki</i> Scott, 1903	21	+	+	+	-
<i>M. sp. nov.</i>	13	+	+	-	-
<i>Pesceus reductus</i> (Wilson, 1956)	4	+	+	-	-
<i>P. schmeili</i> (Mrazek, 1893)	4	+	-	-	-
<i>P. sp. nov.</i>	7	+	+	-	-
Family Nannopodidae Brady, 1880					
* <i>Nannopus procerus</i> Fiers & Kotwicki, 2013	1	-	+	-	-
Class Ostracoda Latreille, 1802					
Ostracoda spp.	1	-	-	+	-
Total species richness:		30	22	21	6

Table S4. Species list and frequency of testate amoebae in water bodies of Kurungnakh and Samoilovsky Islands (southern part of the Lena River Delta) in July–August 2020
(*—species noted in the first time)

Taxons	Frequency (number of water bodies)	Lakes	Complex polygon ponds	Single polygon ponds	Oxbow
Class Elardia (Kang et al., 2017)					
Order Arcellinida (Kent, 1880)					
Suborder Glutinoconcha (Lahr et al. 2019)					
Infraorder Sphaerothecina (Kosakyan et al., 2016)					
Family Arcellidae (Ehrenberg, 1843)					
* <i>Arcella gibbosa</i> (Penard, 1890)	2	-	+	+	-
* <i>Arcella hemisphaerica</i> (Perty, 1852)	1	+	-	-	-
* <i>Arcella rotundata</i> (Playfair, 1918)	3	-	+	+	-

* <i>Arcella rotundata stenostoma undulata</i> (Deflandre, 1928)	2	-	-	+	-
* <i>Galeripora arenaria</i> (Greeff, 1866)	1	-	+	-	-
* <i>Galeripora arenaria compressa</i> (Chardez, 1974)	1	-	+	-	-
<i>Galeripora discoides</i> (Ehrenberg, 1843)	7	+	+	+	-
* <i>Galeripora discoides foveosa</i> (Playfair, 1918)	6	-	+	+	-
Family Netzeiliidae (Kosakyan et al., 2016)					
<i>Cyclopyxis eurytoma</i> (Deflandre, 1929)	2	-	-	-	+
Incertae sedis Sphaerothecina					
* <i>Trigonopyxis arcula</i> (Leidy, 1879)	3	-	-	+	+
Infraorder Longithecina (Lahr et al., 2019)					
Family Diffugiidae (Wallich, 1864)					
* <i>Diffugia bacilliarum</i> (Perty, 1849)	1	-	+	-	-
* <i>Diffugia brevicolla</i> (Cash et Hopkinson, 1909)	1	-	+	-	-
* <i>Diffugia cylindrus</i> (Thomas, 1953)	2	+	-	+	-
* <i>Diffugia gassowskii</i> (Gassowsky, 1936)	4	-	-	+	-
* <i>Diffugia gigantea</i> (Chardez, 1967)	1	-	-	+	-
* <i>Diffugia globulosa</i> (Dujardin, 1837)	6	+	+	+	-
* <i>Diffugia gramen</i> (Penard, 1902)	1	+	-	-	-
<i>Diffugia lucida</i> (Penard, 1890)	5	-	+	+	+
* <i>Diffugia microstoma</i> (Thomas, 1954)	1	-	-	+	-
* <i>Diffugia oblonga</i> (Ehrenberg, 1838)	1	-	-	+	-
* <i>Diffugia parva</i> (Thomas, 1954)	1	+	-	-	-
<i>Diffugia penardi</i> (Hopkinson, 1909)	7	+	+	+	+
Family Lesquereusiidae (Jung, 1942)					
* <i>Lesquereusia epistomium</i> (Penard, 1893)	5	-	+	+	-
* <i>Paraquadrula irregularis</i> (Archer, 1877)	1	-	-	+	-
Infraorder Excentrostoma (Lahr et al., 2019)					
Family Centropyxidae (Jung, 1942)					
<i>Centropyxis aculeata</i> (Ehrenberg, 1838)	8	+	+	+	-
* <i>Centropyxis aculeata oblonga</i> (Deflandre, 1929)	1	+	-	-	-
<i>Centropyxis aerophila</i> (Deflandre, 1929)	23	+	+	+	+
* <i>Centropyxis aerophila sphagnicola</i> (Deflandre, 1929)	7	+	+	+	-
<i>Centropyxis cassis</i> (Wallich, 1864)	13	+	+	+	+
* <i>Centropyxis constricta</i> (Ehrenberg, 1841)	2	+	-	-	+
<i>Centropyxis eornis</i> (Ehrenberg, 1841)	7	+	+	+	-
<i>Centropyxis elongata</i> (Penard, 1890)	4	+	+	-	+
* <i>Centropyxis gasparella</i> (Chardez, Beyens et de Bock, 1988)	3	-	-	+	-
* <i>Centropyxis marsupiformis</i> (Wallich, 1864)	1	-	-	+	-
* <i>Centropyxis minuta</i> (Deflandre, 1929)	2	-	+	-	+
* <i>Centropyxis orbicularis</i> (Deflandre, 1929)	3	+	+	+	-
<i>Centropyxis platystoma</i> (Penard, 1890)	13	+	+	+	-
Infraorder Hyalospheniiformes (Lahr et al., 2019)					
Family Hyalospheniidae (Schultze, 1977, emend. Kosakyan and Lara, 2012)					
* <i>Hyalosphenia platystoma</i> (West, 1903)	1	-	+	-	-
* <i>Longinebela penardiana</i> (Deflandre, 1936)	1	+	-	-	-
* <i>Nebela tincta</i> (Leidy, 1879)	8	-	+	+	-
* <i>Padaungiella lageniformis</i> (Penard, 1902)	1	-	-	+	-
* <i>Padaungiella wailesi</i> (Deflandre, 1936)	1	-	+	-	-

Infraorder Volnustoma (Lahr et al., 2019)					
Family Heleoperidae (Jung, 1942)					
<i>Heleopera petricola</i> (Leidy, 1879)	1	-	-	+	-
* <i>Heleopera petricola amethystea</i> (Penard, 1902)	6	-	+	+	-
* <i>Heleopera sphagni</i> (Leidy, 1874)	1	-	+	-	-
Suborder Organoconcha (Lahr et al., 2019)					
Family Microchlamyidae (Ogden, 1985)					
* <i>Microchlamys patella</i> (Claparède & Lachmann, 1859)	14	+	+	+	+
* <i>Microchlamys</i> sp.	2	-	+	+	-
* <i>Pyxidicula cymbalum</i> (Penard, 1902)	5	+	+	+	-
* <i>Pyxidicula gibbosa</i> (Schönborn, 1966)	1	-	-	+	-
* <i>Pyxidicula operculata</i> (Agardh, 1827)	9	+	+	+	-
* <i>Pyxidicula patens</i> (Claparede et Lachmann, 1858)	4	+	+	+	-
* <i>Pyxidicula</i> sp.	6	-	+	+	-
Suborder Phryganellina (Bovee, 1985)					
Family Phryganellidae (Jung, 1942)					
<i>Phryganella acropodia</i> (Hertwig et Lesser, 1874)	4	+	-	+	-
Family Cryptodiffugiidae (Jung, 1942)					
* <i>Cryptodiffugia crenulata</i> (Playfair, 1917)	1	-	-	+	-
* <i>Cryptodiffugia oviformis</i> (Penard, 1890)	6	+	+	+	-
* <i>Cryptodiffugia oviformis fusca</i> (Penard, 1890)	6	+	+	+	-
* <i>Cryptodiffugia voighti</i> (Schmidt, 1926)	1	-	-	+	-
Incertae sedis Arcellinida					
* <i>Argynnia dentistoma</i> (Penard, 1890)	1	-	+	-	-
* <i>Argynnia dentistoma laevis</i> (Hopkinson, 1908)	1	-	-	+	-
* <i>Lagenodiffugia sphaeroideus</i> (Tarnogradsky, 1961)	1	+	-	-	-
* <i>Zivkovicia compressa</i> (Carter, 1864)	1	-	-	-	+
* <i>Zivkovicia spectabilis</i> (Penard, 1902)	8	-	+	+	-
Class Silicolosea (Adl et al., 2005, emend. Adl et al., 2012)					
Order Euglyphida (Copeland, 1956, emend. Cavalier-Smith, 1997)					
Family Assulinidae (Lara et al., 2007)					
* <i>Assulina muscorum</i> (Greef, 1888)	6	+	+	+	-
* <i>Valkanovia delicatula</i> (Valkanov, 1962)	4	-	+	+	-
Family Cyphoderiidae (de Saedeleer, 1934)					
* <i>Campascus minutus</i> (Penard, 1899)	1	+	-	-	-
Family Euglyphidae (Wallich, 1864, emend. Lara et al., 2007)					
* <i>Euglypha bryophila</i> (Brown, 1911)	5	-	+	+	+
* <i>Euglypha cristata</i> (Leidy, 1879)	2	+	+	-	-
* <i>Euglypha ciliata</i> (Ehrenberg, 1848)	1	-	+	-	-
* <i>Euglypha ciliata glabra</i> (Wailes, 1915)	4	-	+	+	-
* <i>Euglypha filifera</i> (Penard, 1890)	2	-	+	+	-
* <i>Euglypha laevis</i> (Ehrenberg, 1832)	15	+	+	+	-
* <i>Euglypha rotunda</i> (Wailes, 1915)	8	+	+	+	-
* <i>Euglypha strigosa</i> (Ehrenberg, 1871)	8	-	+	+	-
* <i>Euglypha strigosa glabra</i> (Wailes, 1898)	3	-	+	-	-
* <i>Euglypha tuberculata</i> (Dujardin, 1841)	10	+	+	+	+
Family Sphenoderiidae (Chatelain et al., 2013)					
* <i>Sphenoderia fissirostris</i> (Penard, 1890)	1	-	-	+	-

Family Trinematidae (Hoogenraad and De Groot, 1940, emend Adl et al., 2012)					
* <i>Corythion dubium</i> (Taránek, 1881)	5	-	+	+	-
* <i>Corythion orbicularis</i> (Penard, 1910)	1	-	-	+	-
* <i>Playfairina valkanovi</i> (Golemansky, 1966)	4	-	+	+	-
* <i>Trinema complanatum</i> (Penard, 1890)	2	-	-	+	-
* <i>Trinema enchelys</i> (Ehrenberg, 1838)	8	+	+	+	-
* <i>Trinema galeata</i> (Penard, 1890)	1	+	-	-	-
* <i>Trinema lineare</i> (Penard, 1890)	14	+	+	+	+
Total species richness:		32	47	55	14

Table S5. Hierarchical partitioning showing the individual importance of the environmental variables for different ecological groups and the significance permutation test (n = 999) based on the results of CCA. (* $0.01 < p < 0.05$; ** $0.005 \leq p < 0.01$; *** $0.001 \leq p < 0.005$)

Assemblage Variable	Explained variance, %	P-value
Zooplankton		
Temperature, °C	4.51	0.088
Mineralization, ppm	3.44	0.310
Acidity, pH	4.77	0.043*
log(Area, m ²)	3.98	0.105
Permafrost, m	2.8	0.651
Total	19.4 (F _{5,27}) = 1.31	0.03*
Macrobenthos		
Temperature, °C	4.80	0.099
Mineralization, ppm	4.67	0.123
Acidity, pH	6.72	0.006**
log(Area, m ²)	7.30	0.002***
Permafrost, m	5.76	0.028*
Total	29.3 (F _{5,23}) = 1.90	0.001***
Meiobenthos		
Temperature, °C	4.89	0.059
Mineralization, ppm	4.36	0.144
Acidity, pH	4.98	0.029*
log(Area, m ²)	4.38	0.059
Permafrost, m	3.68	0.239
Total	22.3 (F _{5,26}) = 1.49	0.002***
Microbenthos (testate amoebae)		
Temperature, °C	10.3	0.008**
Mineralization, ppm	2.62	0.917
Acidity, pH	8.34	0.022*
log(Area, m ²)	6.10	0.131
Permafrost, m	4.04	0.488
Total	29.9 (F _{5,18}) = 1.53	0.005**

Table S6. Abbreviations list of aquatic species from the Lena River Delta

Zooplankton		Meiobenthos	
Species	Abbreviature	Species	Abbreviature

<i>Acroperus harpae</i>	Acr.har	<i>Attheyella trispinosa</i>	Att.tri
<i>Alona affinis</i>	Alo.aff	<i>Bryocamptus arcticus</i>	Bry.arc
<i>Alona guttata</i>	Alo.gut	<i>Bryocamptus vej dovskyi</i>	Bry.vej
<i>Alona quadrangularis</i>	Alo.qua	<i>Bryocamptus</i> sp. 1	Bry.sp1
Aloninae juv.	Alo.juv	<i>Bryocamptus</i> sp. 2	Bry.sp2
<i>Alonopsis elongatus</i>	Alo.elo	<i>Canthocamptus glacialis</i>	Can.gla
<i>Bosmina cf. longispina</i>	Bos.lon	<i>Epactophanes richardi</i>	Epa.ric
<i>Bosmina longirostris</i>	Bos.long	<i>Moraria duthiei</i>	Mor.dut
<i>Daphnia cucullata</i>	Dap.cuc	<i>Moraria</i> sp.	Mor.sp.
<i>Daphnia longispina</i>	Dap.lon	<i>Moraria insularis</i>	Mor.ins
<i>Daphnia pulex</i>	Dap.pul	<i>Moraria mrazeki</i>	Mor.mra
<i>Eurycercus</i> juv	Eur.juv	<i>Maraenobiotus brucei</i>	Mar.bru
<i>Eurycercus lamellatus</i>	Eur.lam	<i>Pesceus schmeili</i>	Pes.sch
<i>Holopedium gibberum</i>	Hol.gib	<i>Pesceus cf. reductus</i>	Pes.red
<i>Paralona pigra</i>	Par.pig	<i>Nannopus procerus</i>	Nan.pro
<i>Sida crystallina</i>	Sid.cry	<i>Cyclops strenuus</i>	Cyc.str
<i>Acanthocyclops venustus</i>	Aca.ven	<i>Acanthocyclops venustus</i>	Aca.ven
<i>Acanthocyclops vernalis</i>	Aca.ver	<i>Acanthocyclops vernalis</i>	Aca.ver
<i>Cyclops scutifer</i>	Cyc.scu	<i>Diacyclops crassicaudis</i>	Dia.cra
<i>Diacyclops bicuspidatus</i>	Dia.bic	<i>Megacyclops viridis</i>	Meg.vir
<i>Megacyclops viridis</i>	Meg.vir	<i>Eucyclops serrulatus</i>	Euc.ser
<i>Mesocyclops leuckarti</i>	Mes.leu	<i>Paracyclops fimbriatus</i>	Par.fim
<i>Eucyclops serrulatus</i>	Euc.ser	<i>Heterocope borealis</i>	Het.bor
<i>Heterocope borealis</i>	Het.bor	<i>Acroperus harpae</i>	Acr.har
<i>Eudiaptomus graciloides</i>	Eud.gra	<i>Alona affinis</i>	Alo.aff
<i>Eurytemora gracilicauda</i>	Eur.grac	<i>Alona quadrangularis</i>	Alo.qua
<i>Eurytemora gracilis</i>	Eur.gra	Aloninae juv	Alo.juv
<i>Eurytemora raboti</i>	Eur.rab	<i>Alonopsis elongatus</i>	Alo.elo
<i>Mixodiaptomus theeli</i>	Mix.the	<i>Bosmina longirostris</i>	Bos.lon
Copepoda nauplii	Cop.nau	<i>Chydorus sphaericus</i>	Chy.sph
<i>Canthocamptus glacialis</i>	Can.gla	<i>Daphnia pulex</i>	Dap.pul
<i>Polyartemia forcipata</i>	Pol.for	<i>Eurycercus</i> juv.	Eur.juv
Ostracoda	Ost	Ostracoda	Ost

Macrozoobenthos		Microbenthos	
Species	Abbreviation	Species	Abbreviation
<i>Arcella arenaria</i>	Arc.are	<i>Piscicola geometra</i>	Pis.geo
<i>Arcella arenaria compressa</i>	Arc.arec	<i>Gyraulus borealis</i>	Gyr.bor
<i>Arcella discoides</i>	Arc.dis	<i>Physa</i> sp.	Phy.sp.
<i>Arcella discoides foveosa</i>	Arc.disf	<i>Sibirenauta sibirica</i>	Sib.sib
<i>Arcella gibbosa</i>	Arc.gib	<i>Euglesa casertana</i>	Eug.cas
<i>Arcella hemisphaerica</i>	Arc.hem	<i>Henslowiana lilljeborgii</i>	Hen.lil
<i>Arcella rotundata</i>	Arc.rot	<i>Roseana borealis</i>	Ros.bor
<i>Arcella rotundata stenostoma</i>	Arc.rots	<i>Hydrachnidia</i> spp.	Hyd.spp
<i>Argynnia dentistoma</i>	Arg.den	<i>Asellus hilgendorffii</i>	Ase.hil
<i>Argynnia dentistoma laevis</i>	Arg.denl	<i>Gammarus lacustris</i>	Gam.lac

<i>Campascus minutus</i>	Cam.min	<i>Synurella jakutana</i>	Syn.jak
<i>Centropyxis aculeata</i>	Cen.acu	<i>Baetis macani</i>	Bae.mac
<i>Centropyxis aculeata oblonga</i>	Cen.acuo	<i>Nemoura arctica</i>	Nem.arc
<i>Centropyxis aerophila</i>	Cen.aer	<i>Grensia praeterita</i>	Gre.pra
<i>Centropyxis aerophila sphagnicola</i>	Cen.aers	<i>Hydatophylax</i> sp.	Hyd.sp.
<i>Centropyxis cassis</i>	Cen.cas	<i>Micrasema</i> gr. <i>gelidum</i>	Mic.gel
<i>Centropyxis constricta</i>	Cen.con	<i>Agabus adpressus</i>	Aga.adp
<i>Centropyxis elongata</i>	Cen.elo	<i>Agabus elongatus</i>	Aga.elo
<i>Centropyxis gasparella</i>	Cen.gas	<i>Gyrinus opacus</i>	Gyr.opa
<i>Centropyxis marsupiformis</i>	Cen.mar	<i>Hydroporus lapponum</i>	Hyrd.lap
<i>Centropyxis minuta</i>	Cen.min	<i>Hydrophorus</i> sp.	Hydr.sp
<i>Centropyxis platystoma</i>	Cen.pla	<i>Boreosimulium baffinensis</i>	Bor.baf
<i>Cyclopyxis eurystoma</i>	Cyc.eur	<i>Culiseta bergrothi</i>	Cul.ber
<i>Diffugia bacilliarum</i>	Dif.bac	<i>Euphyllidorea lineola</i>	Eup.lin
<i>Diffugia brevicolla</i>	Dif.bre	<i>Phyllidorea nervosa</i>	Phy.ner
<i>Diffugia cylindrus</i>	Dif.cyl	<i>Acricotopus lucens</i>	Acr.luc
<i>Diffugia gassowskii</i>	Dif.gas	<i>Chironomus</i> sp.	Chi.sp.
<i>Diffugia gigantea</i>	Dif.gig	<i>Cladotanytarsus</i> gr. <i>mancus</i>	Cla.man
<i>Diffugia globulosa</i>	Dif.glo	<i>Corynoneura scutellata</i>	Cor.scu
<i>Diffugia gramen</i>	Dif.gra	<i>Cricotopus fuscus</i>	Cri.fus
<i>Diffugia lucida</i>	Dif.luc	<i>Cryptochironomus</i> gr. <i>defectus</i>	Cry.def
<i>Diffugia microstoma</i>	Dif.mic	<i>Derotanypus sibiricus</i>	Der.sib
<i>Diffugia oblonga</i>	Dif.obl	<i>Dicrotendipes nervosus</i>	Dic.ner
<i>Diffugia parva</i>	Dif.par	<i>Dicrotendipes septemmaculatus</i>	Dic.sep
<i>Diffugia penardi</i>	Dif.pen	<i>Glyptotendipes gripekoveni</i>	Gly.gri
<i>Euglypha cristata</i>	Eug.cri	<i>Heterotrissocladius</i> gr. <i>maeaeri</i>	Het.mae
<i>Euglypha filifera</i>	Eug.fil	<i>Heterotrissocladius</i> gr. <i>marcidus</i>	H..mar
<i>Euglypha laevis</i>	Eug.lae	<i>Limnophyes</i> sp.	Lim.sp.
<i>Euglypha strigosa</i>	Eug.str	<i>Lipiniella araenicola</i>	Lip.ara
<i>Euglypha strigosa glabra</i>	Eug.strg	<i>Oliveridia</i> sp.	Oli.sp.
<i>Euglypha tuberculata</i>	Eug.tub	<i>Orthocladius</i> sp. 2	Ort.sp2
<i>Heleopera petricola</i>	Hel.pet	<i>Orthocladius</i> sp. 3	Ort.sp3
<i>Heleopera petricola amethystea</i>	Hel.peta	<i>Orthocladius</i> sp. 4	Ort.sp4
<i>Heleopera sphagni</i>	Hel.sph	Diamesinae sp. 1	Dia.sp1
<i>Hyalosphenia platystoma</i>	Hya.pla	Diamesinae sp. 2	Dia.sp2
<i>Lagenodiffugia sphaeroideus</i>	Lag.sph	<i>Procladius</i> sp.	Pro.sp.
<i>Lesquereusia epistonium</i>	Les.epi	<i>Psectrocladius</i> sp.	Pse.sp.
<i>Longinebela penardiana</i>	Lon.pen	<i>Psectrocladius obvius</i>	Pse.obv
<i>Microchlamys patella</i>	Mic.pat	<i>Psectrocladius delatoris</i>	Pse.del
<i>Microchlamys</i> sp	Mic.sp	<i>Psectrocladius fabricus</i>	Pse.fab
<i>Nebela tincta</i>	Neb.tin	<i>Psectrocladius fennicus</i>	Pse.fen

<i>Padaungiella lageniformis</i>	Pad.lag	<i>Psectrocladius ventricosus</i>	Pse.ven
<i>Padaungiella wailesi</i>	Pad.wai	<i>Stictochironomus</i> sp.	Sti.sp.
<i>Paraquadrula irregularis</i>	Par.irr	<i>Tanytarsus</i> sp.	Tan.sp.
<i>Phryganella acropodia</i>	Phr.acr	<i>Alexandrovina ringulata</i>	Ale.rin
<i>Playfarina valkanovi</i>	Pla.val	<i>Eiseniella tetraedra</i>	Eis.tet
<i>Pyxidicula gibbosa</i>	Pyx.gib	Enchytraeidae sp.	Enc.sp.
<i>Pyxidicula operculata</i>	Pyx.ope	<i>Embolocephalus velutinus</i>	Emb.vel
<i>Pyxidicula</i> sp.	Pyx.sp.	<i>Limnodrilus</i> sp.	Lymn.sp
<i>Sphenoderia fissirostris</i>	Sph.fis	<i>Spirosperma ferox</i>	Spi.fer
<i>Trygonopyxis arcula</i>	Try.arc		
<i>Trinema complanatum</i>	Tri.com		
<i>Trinema enchelys</i>	Tri.enc		
<i>Valkanovia delicatula</i>	Val.del		
<i>Zivkovicia compressa</i>	Ziv.com		