

The invertebrate fauna of Lake Mývatn, Iceland

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Macrozoobenthos of Lake Mývatn and surrounding ponds is listed on the basis of qualitative samples taken in July 1972. 65 species are recorded. Further information available from previous investigations in the Mývatn area is compiled, and a list of 229 species of invertebrates (excl. Protozoa, Nematoda, Trematoda, Ostracoda, and Collembola) has been produced. The species constitute half of the currently known freshwater invertebrates of Iceland.

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Приведен фаунистический состав макрозообентоса озера Миватн и Φ окружающих водоемов на основе качественных сборов в июле 1972 г. Найдено 65 видов. Используются дополнительные данные более ранних исследований территории Миватн, включающие 229 видов беспозвоночных (исключая простейших, нематод, трематод, остракод, коллембол). Эти виды составляют половину пресноводных беспозвоночных, известных из Исландии.

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Introduction

As a part of the Mývatn project (Jónasson 1979) the zoobenthos of Lake Mývatn and surrounding ponds was investigated in the summer of 1972. Though previously there has never been a major limnological investigation of Lake Mývatn, the lake has for a long time been famous as a rich char and duck lake, and specialists in various invertebrate groups have often used the Mývatn area as an important collecting place. It was known from such works that the Mývatn area has a rich and differentiated fauna.

Lake Mývatn (38 km² in area and 4 m deep) is situated in Northern Iceland (65°35'N, 17°00'W). Its physical and chemical characteristics are described elsewhere (Jónasson 1979, Ólafsson 1979a, b, Rist 1979a, b). Its littoral and profundal substrata are described by Hunding (1979) and Lindegaard and Jónasson (1975, 1979). The vegetation around the lake is described by Bengtson (1972).

A great variety of ponds and pools are found around the lake, some with a rich vegetation, and some with more or less naked lava blocks. Also, lowlying places with water seeping in the bottom vegetation are common. Thus many different freshwater habitats are present.

Qualitative samples were taken by net (mesh size 100 µm) and by brushing and picking animals from stones at several places round the lake and in a number of ponds. Additional insects (imagines) were taken by net along the shores.

Species found

In the present study only macroinvertebrates were identified. In total, 65 species or taxa were found in the samples. They are listed in Tab. 1 together with species found in previous investigations. Some groups (i.e. Protozoa, Nematoda, Trematoda, Ostracoda, and Collembola) are omitted due to lack of expertise to identify them. Other groups (i.e. Turbellaria, Rotatoria, Crustacea, and some dipteran families) are treated on the basis of literature only.

Altogether 229 species are listed from the Mývatn area. It is a little more than 50% of the total Icelandic freshwater fauna recorded today. Twenty-four species were taken only as flying insects in the area. Of the remaining species 157 are found in the lake, and 117 in the surrounding ponds. Common to both lake and ponds are 70 species.

Twenty-five true planktonic species are found in Lake Mývatn. The production of the dominating planktonic species has been calculated (Adalsteinsson 1979a). In the "profundal" part (i.e. from about 1 m depth) 16 species, (excluding Rotifera and Crustacea) are found. The production of these has also been calculated (Lindegaard and Jónasson 1979). Eight species

are found in the spring area only and are considered as coldstenothermic or rheobiontic species.

The distribution of the single species is described by the authors cited in Tab. 1. The distribution of Chironomidae is treated by Lindegaard (1979), except for a few, which are mentioned here.

Ablabesmyia monilis is widely distributed in lakes in Europe but found in ponds in the Alps only (Fittkau 1962). In the Mývatn area it is one of the dominating chironomids in the ponds, and found only scattered in the lake.

Heterotrissocladius grimshawi is known from lakes in Northern Europe and found most abundantly in oligotrophic lakes (Sæther 1975). In Mývatn it is taken scattered in the spring area.

Psectrocladius psilopterus is widely distributed in Central and Northern Europe.

Smittia aterrima has a holarctic distribution. The larvae live in damp soil.

Limnochironomus pulsus is widely distributed in Central and Northern Europe.

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Tab. 1. Invertebrate species recorded from Lake Mývatn and surrounding ponds. The first five columns refer to the present study. Three symbols are used, indicating species found singly or as a few specimens (×), commonly found species (o) or dominant species (●). The last three columns show species found in previous investigations. An asterisk * after the author indicates planktonic species. × by Rotifera refers to Ridder (1972).

	Mývatn					others Mývatn	others ponds	others flying insects
	profundal	littoral	spring area	ponds	flying insects			
Porifera								
<i>Ephydatia muelleri</i>								
(Lieberkühn)							Fjeldså and Raddum	
							1973, Tendal	1976
Coelenterata								
<i>Hydra</i> sp. cfr.								
<i>attenuata</i> Pallas	×	o	×	×				
Turbellaria	×			×				
<i>Stenostomum leucops</i>								
(Dugès)							Steinböck	1948
<i>Otomesostoma</i>								
<i>auditivum</i>						Steinböck	1948	
(Plessis)							Steinböck	1948
<i>Castrella truncata</i>								
(Abildgaard)							Steinböck	1948
<i>Gieyzoria foreli</i>								
(Hofsten)						Steinböck	1948	
<i>G. infundibuliformis</i>								
(Fuhrmann)							Steinböck	1948
<i>Castrada ejde</i>								
Steinböck							Steinböck	1948
<i>C. intermedia</i>								
(Volz)							Steinböck	1948
<i>C. lanceola</i>								
(Braun)							Steinböck	1948
<i>C. stagnorum</i>								
Luther							Steinböck	1948
<i>Phaenocora unipunctata</i>								
(Ørsted)							Steinböck	1948
<i>Strongylostoma</i>								
<i>elongatum</i>								
Hofsten							Steinböck	1948
<i>S. simplex</i> Meixner						Steinböck	1948	
<i>Ophistocystis goettei</i>								
(Bresslau)							Steinböck	1948
<i>Sekerana štolci</i>								
(Sekera)							Steinböck	1948,
							Papi	1967
Nematoda	×	×	×	×				
Rotatoria								
Habrotrochidae								
<i>Habrotrocha</i>								
<i>angusticollis</i>								
(Murray)						×	mosses	
<i>H. lata</i> (Bryce)						×	mosses	
Adinetidae								
<i>Adineta vaga</i> (Davis)						×	mosses	
Philodinidae								
<i>Mniobia montium</i>								
Murray						×	mosses	
<i>Macrotrachela plicata</i>								
(Bryce)						×	mosses	
<i>M. quadricornifera</i>								
Milne						×	mosses	
<i>M. ehrenbergii</i>								
(Janson)						×	mosses	
<i>M. concinna</i>								
(Bryce)						×	mosses	

	Mývatn							
	profundal	littoral	spring area	ponds	others	Mývatn	ponds	flying insects
<i>M. habita</i>								
(Bryce)							×	mosses
Brachionidae								
<i>Epiphanes macroura</i>								
(Barrois et Daday)					×		×	
<i>E. sp. cfr. pelagica</i>								
(Jennings)						Adalsteinsson 1979a*		
<i>Trichotria pocillum</i>								
(Müller)					×		×	
<i>T. tetractis</i>								
(Ehrenberg)					×		×	
<i>Brachionus calyciflorus</i>								
Pallas					×			
<i>B. urceolaris</i>								
Müller						Adalsteinsson 1979a*		
<i>Mytilina ventralis</i>								
(Ehrenberg)					×		×	
<i>Euchlanis sp. cfr.</i>								
<i>meneta</i> Myers						Adalsteinsson 1979a*		
<i>E. lyra</i> Hudson					×			
<i>E. parva</i> Rousselet					×		×	
<i>E. incisa</i> Carlin							×	
<i>E. alata</i> Voronkov						Adalsteinsson 1979a*		
<i>E. dilatata</i>								
Ehrenberg					×		×	
<i>E. pyriformis</i> Gosse							×	
<i>Keratella cochlearis</i>								
(Gosse)					×		×	
<i>K. quadrata</i>								
(Müller)					×			
<i>Argonotholca foliacea</i>								
(Ehrenberg)					×			
<i>Kellicottia</i>								
<i>longispina</i>								
(Kellicot)					×			
<i>Notholca acuminata</i>								
(Ehrenberg)					×		×	
<i>N. labis</i> Gosse					×			
<i>N. squamula</i> (Müller)					×			
<i>Squatinella</i>								
<i>longispinata</i>								
(Tatem)							×	
<i>S. tridentata</i>								
(Fresenius)					×		×	
<i>Lepadella acuminata</i>								
(Ehrenberg)					×		×	
<i>L. ovalis</i> (Müller)					×			
<i>L. patella</i> (Müller)					×		×	
<i>L. triptera</i>								
Ehrenberg					×		×	
<i>Colurella adriatica</i>								
Ehrenberg					×			
<i>C. anodonta</i> Carlin					×		×	
<i>C. hindenburgi</i>								
Steinecke					×		×	
<i>C. obtusa</i> (Gosse)					×		×	
<i>C. paludosa</i> Carlin							×	
<i>C. tessellata</i>								
(Glascott)					×		×	
<i>C. uncinata</i> (Müller)					×		×	
<i>Lecane acus</i> (Harring)					×		×	
<i>L. arcuata</i> (Bryce)							×	
<i>L. bulla</i> (Gosse)							×	

	Mývatn				others Mývatn	others ponds	others flying insects
	profundal	littoral	spring area	ponds			
<i>L. closterocerca</i>							
(Schmarda)					×	×	
<i>L. cornuta</i> (Müller)						×	
<i>L. flexilis</i> (Gosse)					×	×	
<i>L. galeata</i> (Bryce)						×	
<i>L. hamata</i> (Stokes)						×	
<i>L. hospes</i> Donner						×	
<i>L. imbricata</i>							
Carlin					×		
<i>L. islandica</i>							
De Ridder					×	×	
<i>L. kostei</i>							
De Ridder					×		
<i>L. lunaris</i>							
(Ehrenberg)					×	×	
<i>L. magna</i> (Stenroos) ...					×	×	
<i>L. opias</i>							
(Harring et Myers)						×	
<i>L. perplexa</i>							
(Ahlstrom)						×	mosses
<i>L. tuxeni</i>							
De Ridder					×		
<i>L. luna</i> (Müller)					×		
<i>L. nana</i> (Murray)					×		
Notommatidae							
<i>Scaridium</i>							
<i>longicaudum</i>							
(Müller)					×		
<i>Monommata longiseta</i>							
(Müller)					×	×	
<i>Cephalodella</i>							
<i>catellina</i> (Müller)					Adalsteinsson 1979a*		
					×		
<i>C. exigua</i> (Gosse)						×	
<i>C. gibba</i> (Ehrenberg) ..					×	×	
Trichocercidae							
<i>Trichocerca cavia</i>							
(Gosse)					×	×	
<i>T. elongata</i>							
(Gosse)					Adalsteinsson 1979a*	×	
<i>T. iernis</i> (Gosse)					Adalsteinsson 1979a*		
<i>T. porcellus</i> (Gosse) ...					Adalsteinsson 1979a*		
<i>T. rattus</i> (Müller)					Adalsteinsson 1979a*		
<i>T. tigris</i> (Müller)					×	×	
<i>T. weberi</i> (Jennings) ...					×	×	
<i>T. uncinata</i> (Voigt)					×	×	
Gastropodidae							
<i>Ascomorpha ovalis</i>							
(Bergendal)					×		
<i>A. saltans</i> Bartsch					×		
Dicranophoridae							
<i>Encentrum mustela</i>							
(Milne)						×	
Asplanchnidae							
<i>Asplanchna priodonta</i>							
Gosse					×	×	
<i>Asplanchnella</i>							
<i>brightwelli</i>							
(Gosse)					Adalsteinsson 1979a*		
Synchaetidae							
<i>Polyarthra</i>							
<i>dolichoptera</i>							
Idelson					×	×	

	Mývatn				others Mývatn	others ponds	others flying insects
	profundal	littoral	spring area	ponds flying insects			
<i>P. proloba</i>							
Wulfert						×	
<i>P. remata</i> Skorikov					×*		
<i>P. vulgaris</i> Carlin					×		
<i>Synchaeta</i> sp. cfr. <i>grandis</i> Zacharias					Adalsteinsson 1979a*		
<i>S.</i> sp. cfr. <i>lakowitziana</i>							
Lucks					Adalsteinsson 1979a*		
<i>S. oblonga</i>							
Ehrenberg					×*		
Testudinellidae							
<i>Testudinella emarginula</i>							
(Stenroos)					×		
<i>T. patina</i> (Hermann) ...					×		
<i>Filinia longiseta</i> (Ehrenberg)					×*		
<i>F. terminalis</i> (Plate)					Adalsteinsson 1979a*		
Conochilidae							
<i>Conochilus hippocrepis</i> (Schrank)						×	
<i>C. unicornis</i> Rousset					×*	×	
Collotheceidae							
<i>Collotheca libera</i> (Zacharias)					Adalsteinsson 1979a*		
Oligochaeta							
Naididae							
<i>Chaetogaster diaphanus</i> (Gruithuisen)	×	×	×	○	Hrabě 1952		
<i>C. langi</i> Bretscher			×				
<i>Specaria josinae</i> (Vejdovsky)					Hrabě 1952		
<i>Uncinai uncinata</i> (Ørsted)			×		Hrabě 1952		
<i>Nais communis</i> Piquet	×	×		×			
<i>N. elinguis</i> Müller			×				
Tubificidae							
<i>Tubifex tubifex</i> (Müller)	○	○	×	×	Hrabě 1952	Hrabě 1952	
<i>Pelosclex ferox</i> (Eisen)			×		Hrabě 1952		
Enchytraeidae			×	○	×		
Lumbriculidae							
<i>Lumbriculus variegatus</i> (Müller)			○	×	Hrabě 1952	Hrabě 1952	
<i>Stylodrilus heringianus</i> Claparède			×		Hrabě 1952	Hrabě 1952	
Lumbricidae							
<i>Eiseniella tetraedra</i> (Savigny)			×				
Hirudinea							
<i>Theromyzon tessulatum</i> (Müller)			×	×	Bruun 1938		
<i>T. garjaewi</i> (Livanow) ..					Bruun 1938		
<i>T. maculosum</i> (Rathke)					Fjeldså and Raddum 1973		

	Mývatn					others Mývatn	others ponds	others flying insects
	profundal	littoral	spring area	ponds	flying insects			
<i>Glossiphonia complanata</i> (L.)		×		×		Bruun 1938		
<i>Helobdella stagnalis</i> (L.)	×	○		○		Bruun 1938	Bruun 1938	
Crustacea								
Notostraca								
<i>Lepidurus arcticus</i> (Pallas)						Adalsteinsson 1979b	Poulsen 1939	
Cladocera								
<i>Daphnia longispina</i> (Müller)						Poulsen 1939*	Poulsen 1939	
<i>Scapholeberis mucronata</i> (Müller)							Poulsen 1939	
<i>Simocephalus vetulus</i> (Müller)						Adalsteinsson 1979b		
<i>Bosmina obtusirostris</i> Sars						Poulsen 1939*, Adalsteinsson 1979b		
<i>Macrothrix hirsuticornis</i> Norman et Brady						Poulsen 1924	Poulsen 1924	
<i>Ilicryptus sordidus</i> (Liévin)						Poulsen 1939		
<i>Eurycercus lamellatus</i> (Müller)						Poulsen 1924	Poulsen 1924	
<i>Acroperus harpae</i> Baird						Poulsen 1924	Poulsen 1924	
<i>Alona affinis</i> (Leydig)						Poulsen 1924	Poulsen 1924	
<i>A. quadrangularis</i> (Müller)						Poulsen 1939	Poulsen 1924	
<i>A. rectangula</i> Sars						Adalsteinsson 1979b		
<i>Graptoleberis testudinaria</i> (Fischer)						Adalsteinsson 1979b	Poulsen 1924	
<i>Alonella excisa</i> (Fischer)						Adalsteinsson 1979b	Poulsen 1924	
<i>A. nana</i> (Baird)						Adalsteinsson 1979b	Poulsen 1924	
<i>Chydorus sphaericus</i> (Müller)						Poulsen 1924*	Poulsen 1924	
<i>Polyphemus pediculus</i> L.							Poulsen 1924	
Ostracoda	×	×	×	×				
Copepoda								
<i>Leptodiatomus minutus</i> (Lilljeborg)							Poulsen 1924	
<i>Macrocyclops albidus</i> (Jurine)						Adalsteinsson 1979b		
<i>M. fuscus</i> (Jurine)						Poulsen 1939, Adalsteinsson 1979b		
<i>Eucyclops serrulatus</i> (Fischer)						Poulsen 1924	Poulsen 1924	
<i>Paracyclops fimbriatus</i> (Fischer)						Adalsteinsson 1979b		
<i>Cyclops</i> sp. (probably <i>C. abyssorum</i> Sars)						Adalsteinsson 1979b*		
<i>Megacyclops viridis</i> (Jurine)						Poulsen 1924	Poulsen 1924	
Bryozoa								
<i>Plumatella fungosa</i> Pallas		×				Fjeldså and Raddum 1973		

	Mývatn					others Mývatn	others ponds	others flying insects
	profundal	littoral	spring area	ponds	flying insects			
<i>Christatella mucedo</i> Cuvier						Heding 1938		
Insecta								
Collembola	×	×	×					
Ephemeroptera								
<i>Cloën simile</i> Eaton	×					Tuxen 1938		
Heteroptera								
<i>Arctocoris carinata</i> Sahlberg				●		Lindroth 1931 Frstrup 1945	Frstrup 1945	
Trichoptera								
<i>Apatania zonella</i> (Zetterstedt)	×	×				Frstrup 1942, Gíslason 1975		Frstrup 1942
<i>Limnephilus affinis</i> Curtis	×	×			×	Frstrup 1942		Frstrup 1942
<i>L. fenestratus</i> Zetterstedt					×			Frstrup 1942
<i>L. griseus</i> (L.)				×		Frstrup 1942	Frstrup 1942	Frstrup 1942
<i>L. picturatus</i> Mc Lachlan					×	Frstrup 1942	Frstrup 1942	Frstrup 1942
<i>L. sparsus</i> Curtis								Frstrup 1942
Coleoptera								
<i>Haliplus fulvus</i> Fabricius				×		Larsson and Gígja 1959		
<i>Hydroporus nigrita</i> Fabricius						Larsson and Gígja 1959	Lindroth 1931	
<i>Agabus bipustulatus</i> L. .				×		Larsson and Gígja 1959		
<i>Colymbetes dolabratus</i> Paykull				×		Larsson and Gígja 1959	Lindroth 1931	
Diptera (only limnic species included)								
Tipulidae								
<i>Prinocera turcica</i> (Fabricius)								Nielsen et al. 1954
Limoniidae								
<i>Dicranomyia autumnalis</i> Staeger								Nielsen et al. 1954.
<i>D. didyma</i> Meigen								Nielsen et al. 1954
<i>Dicranota exclusa</i> (Walker)								Nielsen et al. 1954
<i>Erioptera trivialis</i> Meigen								Nielsen et al. 1954
<i>Ormosia hederæ</i> Curtis <i>O. fascipennis</i> (Zetterstedt)								Nielsen et al. 1954
Chironomidae								
<i>Macropelopia nebulosa</i> (Meigen)	×	×	○		×			
<i>M. goetghebuerti</i> Kieffer								Goetghebuert and Lindroth 1931
<i>Procladius islandicus</i> (Goetghebuert)	○	×			×			Goetghebuert and Lindroth 1931
<i>Arctopelopia</i> <i>griseipennis</i> (v.d. Wulp)		×			×			
<i>Ablabesmyia monilis</i> (L.)	×	×		●				Goetghebuert and Lindroth 1931

	Mývatn					others Mývatn	others ponds	others flying insects
	profundal	littoral	spring area	ponds	flying insects			
<i>Diamesa aberrata</i> (Lundbeck)			×		×			
<i>Heterotrissocladius</i> <i>grimshawi</i> Edwards			×		×			
<i>Eukiefferiella minor</i> (Edwards)		×	●		×			
<i>Euorthocladius</i> <i>frigidus</i> (Zetterstedt)			○		×			
<i>Pogonocladus</i> <i>consubrinus</i> (Holmgren)	×	×	×	×	×	Thienemann 1937		
<i>Orthocladius oblidens</i> (Walker)	×	×	×		×			
<i>O.? islandicus</i> Kieffer								Goetghebuer and Lindroth 1931
<i>Cricotopus sylvestris</i> (Fabricius)	×	○			○			Goetghebuer and Lindroth 1931, Hirvenoja 1973
<i>C. tibialis</i> (Meigen)	×	×	○		×			Goetghebuer and Lindroth 1931, Hirvenoja 1973
<i>C.? glacialis</i> Edwards								Goetghebuer and Lindroth 1931, Hirvenoja 1973
<i>Psectrocladius</i> <i>barbimanus</i> (Edwards)	×	×		×	×			Goetghebuer and Lindroth 1931
<i>P. edwardsi</i> Brundin . . .					×			
<i>P. psilopterus</i> Kieffer . .			×		×			
<i>Rheocricotopus effusus</i> (Walker)			×		×			
<i>Paralimnophyes</i> sp. cfr. <i>hydrophilus</i> (Goetghebuer)		×						
<i>Limnophyes difficilis</i> Brundin			×	×	×			
<i>Metriocnemus</i> <i>hygropetricus</i> Kieffer		×						
<i>Paraphaenocladus</i> <i>impensus</i> (Walker)					×			
<i>Smittia aterrima</i> (Meigen)					×			
<i>Corynoneura</i> sp.				×				
<i>Chironomus anthracinus</i> Zetterstedt								Goetghebuer and Lindroth 1931 Goetghebuer and Lindroth 1931
<i>C. dorsalis</i> Meigen								
<i>C. pilicornis</i> Fabricius								Goetghebuer and Lindroth 1931
<i>C. islandicus</i> Kieffer		●	○		×			Pedersen 1978
<i>C. annularis</i> group		×						
<i>C. sp.</i>		×						

	Mývatn					others Mývatn	others ponds	others flying insects
	profundal	littoral	spring area	ponds	flying insects			
<i>Limnochironomus pulsus</i> (Walker)				o	x			
<i>Paracladopelma</i> <i>laminata</i> Kieffer	x	x						
<i>Micropsectra</i> <i>atrofasciata</i> Kieffer	?	o		o				
<i>M. lindrothi</i> Goetghebuer		x		x				Goetghebuer and Lindroth 1931, Säwedal 1976
<i>M. notescens</i> (Walker)								Goetghebuer and Lindroth 1931
<i>M. recurvata</i> Goetghebuer		x		x				
<i>Tanytarsus gracilentus</i> (Holmgren)	•	•		•				Lindeberg 1968
Empididae								
<i>Atalanta stagnalis</i> (Haliday)	x		x	x				Nielsen et al. 1954
Dolichopidae								
<i>Dolichopus plumipes</i> Scopoli								Nielsen et al. 1954
<i>Campsicnemus armatus</i> Zetterstedt								Nielsen et al. 1954
Sciomyzidae								
<i>Ditaeniella grisescens</i> Meigen								Nielsen et al. 1954
<i>Tetanocera robusta</i> Loew							Nielsen et al. 1954	
Ephydridae							Nielsen et al. 1954	
<i>Scatella stagnalis</i> Fallén								Nielsen et al. 1954
<i>S. sibilans</i> Haliday								Nielsen et al. 1954
Hydracarina								
<i>Sperchon glandulosus</i> Koenike	x	x						Motaş 1961
<i>Forelia liliacea</i> (Müller)								Motaş 1961
Mollusca								
<i>Radix peregra</i> Müller	x	o	x	x				
<i>Galba truncatula</i> (Müller)								Mandal-Barth 1938
<i>Gyraulus laevis</i> (Alder)								Mandal-Barth 1938
<i>Pisidium casertanum</i> Poli	o							Mandal-Barth 1938
<i>P. nitidum</i> Jenyns		x		x				
<i>P. obtusale</i> Pfeiffer								Mandal-Barth 1938
<i>P. obtusale lapponicum</i> Clessin				x				
<i>P.? milium</i> Held								Mandal-Barth 1938, Jaeckel 1967