



SIL news

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The International Association of Theoretical and Applied Limnology (Societas Internationalis Limnologiae Theoreticae et Applicatae, SIL) promotes and communicates new and emerging knowledge among limnologists to advance the understanding of inland aquatic ecosystems and their management.

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Lake Hövsgöl, Mongolia looking northward from the eastern shore towards the Sayan Mountains and the border with Russia. (Photo courtesy of Jon Gelhaus and was taken June, 1997)

Material for the September 2002 issue should be sent to the Editor for **June 7, 2002:**

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Contributions on a PC formatted disk, in any standard word processor or DOS (ASCII) text, or as email attachments, will assist the Editor.

Lake Hövsgöl, Mongolia: The Blue Pearl of Mongolia

by

Clyde E. Goulden and Bazartseren Boldgiv

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Figure 1 - Location and outline of Lake Hövsgöl, Mongolia with tributary streams. (Map courtesy of W.C. Hession)

Lake Hövsgöl, one of the least well known of the ancient lakes, is located about 200 km southwest of Lake Baikal in northern Mongolia (Figure 1; N49° 53'-52° 00' and E99° 00'-101° 56'). It is a sister lake to Baikal, formed at the southern end of the Baikal Rift System as one of three north/south aligned tectonic basins. The Rift system resulted from the re-activation of faults running parallel to the Siberian Platform by the collision between India and the Eurasian plate (Molnar and Tapponier 1975). Though precise dating is not yet available for Lake Hövsgöl, the basin apparently began to form following volcanism in the surrounding region during the late Cenozoic, and is estimated to be 2 to 5 million years old (Goulden *et al.*, manuscript in preparation; Krivonogov, manuscript in preparation). The geology of the basin consists of Devonian dolomites and olivine basalts from the volcanism (Goulden *et al.*, in review). The lake is almost completely surrounded by mountains (as seen on the cover page). Though its origin is similar, it is neither as old nor as deep as

Lake Baikal, but the surface of Lake Hövsgöl is 1200 m above Baikal's surface. The lake is 135 km long and varies between 20 and 30 km wide, with a depth of 262 m. The estimated volume of water is 383.3 km³ (Kozhova *et al.* 1989). The winters are longer and colder than at Baikal because of its greater altitude, and the lake is almost completely surrounded by permafrost. The temperature of the lake water is often below 4° C during the winter, generally between 2 and 3°C. Numerous tributary streams enter the lake (Figure 1), and all but one, a spring, are frozen during the winter. The outflow, Egiin gol, forms one of the major tributaries of the Selenge River, the major source of water entering Baikal. The biota of Lake Hövsgöl includes endemic taxa, most notably, *Cladophora kozhovi*, a small (1 mm) cylindrical algae colony widespread and freely rolling on the benthic sediments, *Mixodiatomus kozhovi* (Stepanova), the dominant zooplankton taxon, and *Limnephilus hovsgolicus* Morse, a flightless caddis fly (Morse 1999).

Primary production in the lake, as measured by Kozhova and colleagues (Kozhova *et al.* 1989) is quite low, more similar to that of the oceans than of lakes. The deep penetration of light (Secchi disc readings of 27 to 30 m) into the lake gives it a blue hue, thus the name, “the blue pearl of Mongolia”.

Studies of Lake Hövsgöl did not begin until the mid to late 19th Century because of its remoteness, and have occurred in a series of phases:

1. Preliminary visits by Russian geographers and biologists during the late 1800s described the geography of the basin and collected plant and animal samples, leading to published descriptions of several new taxa in papers by Ostenfeld (1907) of new non-diatom algal species, including a bathymetric map of the lake, several new diatom taxa (Oestrup 1908), and new invertebrate taxa described by Daday (1908).
2. A series of Mongolian Russian Expeditions that extended from the late 1950s to the early 1990s. A 20-year cooperative study, between 1970 and 1990, jointly organized by the National University of Mongolia and Irkutsk State University, largely focused on the limnology of the lake, its watershed hydrology, forestry and soils and economic resources. These efforts resulted in numerous publications, including the “Hövsgöl Atlas” (Kozhova *et al.* 1989); most of the publications were either in Russian or the Mongolian language and did not receive broad distribution. Exceptions were papers by Kozhova *et al.* (1994, 2000).

3. In 1995 the Mongolian/U.S./Russian/Japanese Expeditions began, focusing on the biodiversity and limnology of the lake and its tributary streams. Several new taxa were described and new studies of the hydrology of the lake providing information on thermal stratification and the dynamics of lake mixing are to be published in a new book on Lake Hövsgöl that is in the final stages of review and editing (edited by Goulden, Sitnikova, Gelhaus and Boldgiv). Tributary streams have several endemic species also. Gelhaus *et al.*, in review have identified 85 species of Tipuloidae (Diptera) and nine are described as new species. New species of gastropods, amphipods, ostracods, and Trichoptera have also been described from the lake and its tributaries. A new bivalve was recently described by Slugina and Starobogatov (2001).
4. Lake Hövsgöl was designated as Mongolia's first Long Term Ecological Research Network (MLTER) network site in 1997 (Goulden *et al.* 2000). The Fourth Biennial Meeting of the East Asian International Long Term Ecological Research Network was held at Lake Hövsgöl in July 2001.
5. In 2001, the Mongolian Academy of Sciences received a five-year grant from the Global Environment Facility and the World Bank for a study entitled, "Dynamics of Biodiversity Loss and Permafrost Melt in Lake Hövsgöl National Park, Mongolia". The objectives of this study are:
 - a. To identify the impacts of pasture use and forest cutting on the dynamics of forest, steppe, riparian zones, and streams in tributary valleys of Lake Hövsgöl.
 - b. To define how those impacts interact and are affecting the melting of permafrost (and thus release of carbon dioxide), soil characteristics, and plant and animal biodiversity.
 - c. To inventory climate change effects in the Hövsgöl National Park.
 - d. To determine sustainable resource use patterns that will also protect biodiversity, permafrost and soil sequestration of carbon.
 - e. Calculation of costs and benefits of alternative land use practices, especially as related to pastoral nomads.

This study will be concentrated on the watershed of the lake, and forms the core of the MLTER program at Lake Hövsgöl. Lake Hövsgöl lies at the southern edge of the taiga forest, and is underlain by permafrost so this region should experience major changes in the future. The region has already had an average temperature increase of about 1.4° C over the last 35 years. Examples of thermokarst formation, and solifluction

are becoming widespread in the area around the lake (Tumurbaatar 1999). Long-term monitoring of the lake is particularly important and is needed.

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Photo taken at the University of Michigan in the 1960s.



Borsog gol, a tributary stream entering Lake Hövsgöl along the eastern side. This valley has no nomadic grazing herds present now, but did in the past. The floor of the valley is steppe, but may have been forested earlier. Photo taken July, 1998 by Clyde Goulden. (See cover story)

David C. Chandler

11 July 1906 - 8 November 2001

David C. Chandler, known for his dedication to research on the Laurentian Great Lakes, passed away 8 November 2001, in Schaumburg, Illinois at the age of 95. Born 11 July 1906, in Walnut Grove, MN, he was raised in Montfort, WI, a farming community, where he starred as captain of the high school basketball team. He attended Greenville College (Illinois) where he met Pearl Carlson, his future wife, and graduated in 1929. He received a master's in zoology in 1930 and a doctorate in zoology in 1934 at the University of Michigan. His doctoral research was on the fate of lake plankton in an outflowing river.

Chandler held academic positions as Instructor and Associate Professor of Zoology, University of Arkansas (1934-35 and 1936-38); Chairman of Science Department, McMurry College (Texas) (1935-36); Assistant, Associate and Professor of Limnology, Ohio State University, Franz Theodore Stone Laboratory, Put-in-Bay (1938-49); Professor of Limnology, Cornell University (1949-53) and Professor of Zoology, University of Michigan (1953-73). At the University of Michigan, he also was Director of the Great Lakes Research Institute (GLRI) later reorganized as

the Great Lakes Research Division (GLRD).

One of Chandler's first activities at Michigan in 1953 was to organize and host conferences on Great Lakes research. Eventually, these conferences provided a forum for an annual exchange of scientific information leading to published proceedings of scientific papers read at the meetings. Chandler worked diligently in founding the International Association of Great Lakes Research (IAGLR) in 1967 and served as the first President. The Society published proceedings of the annual meetings from 1967 until 1974 when the emphasis shifted to peer-reviewed papers in the *Journal of Great Lakes Research*.

Chandler was active in other national and international scientific societies. He was a charter member of the American Society of Limnology and later served as Vice President and President of the American Society of Limnology and Oceanography after the society reorganized to include oceanography. He also was Vice President and President of the American Microscopical Society and active in other societies including the Ecological Society of America, International Association of Theoretical and Applied Limnology, Michigan Academy of Science, Ohio Academy of Science (Fellow) and American Association for the Advancement of Science (Fellow).

Chandler's research on the Great Lakes included five classic studies of plankton dynamics in relation to physical, chemical, climatic and meteorological factors in western Lake Erie. These multi-year investigations conducted year around at the Stone Laboratory highlighted annual and long-term variability in the plankton in relation to environmental factors demonstrating that long-term studies are needed to assess environmental trends in these large, dynamic systems. At the University of Michigan, currents and water masses were described from synoptic surveys of Lake Huron and Lake Michigan. Oceanographic techniques were employed, an achievement of some note in those days when data for thermal profiles were collected with bathythermographs on smoked-glass slides using students and other volunteers to make shipboard observations and collections, and navigation of small fishing tugs on cross-lake transects was entirely by dead reckoning. Lake Huron was a joint study with the Ontario Department of Lands and Forests, an early example of institutional and international cooperation that Chandler promoted over the years.

He was concerned with the Great Lake community and promoted its activities by supporting federal legislation to create the Sea Grant Program and successfully worked for inclusion of the Great Lakes in the legislation. Another important accomplishment was providing platforms for Great Lakes' research. Research vessels operated by the University of Michigan were available to scientists working in the region. Chandler's efforts enabled the operation of these

ships as part of the University National Oceanographic Laboratory System (UNOLS). Michigan was the only non-oceanographic member of this consortium of 57 academic institutions. He also was President of the Great Lakes Foundation, an organization dedicated to promoting public understanding of the problems and facts of freshwater usage in the Great Lakes basin and professional scientific research in the field of fresh water.

Chandler was concerned with good mentoring and encouraged an environment conducive to broad thinking for students and scientific staff and associates. He encouraged innovation, but was never dogmatic in advising his 15 doctoral students from Cornell University, Ohio State University and the University of Michigan. The importance of innovation was stressed by insisting that graduate students utilize experimental techniques in their dissertation research. A broadly based scientific program in GLRD was promoted and encouraged by hiring not only limnologists and biologists, but also broadly trained scientists whose interests ranged from palynology and paleolimnology, to radiochemistry and neutron activation analysis as well as taxonomy, geochemistry, physical limnology and meteorology. A manned submersible, *Star II*, and an underwater laboratory were used in Lake Michigan to investigate the usefulness of such facilities in teaching and research. His legacy at Michigan would continue and the program would thrive under two reorganizations; first as the Great Lakes and Marine Waters Center and finally as the Center for Great Lakes and Aquatic Science (Beeton and Schneider 1998).

David Chandler was known for his good humour, dedication, integrity and innovation. He was thoughtful, kind, knowledgeable and articulate, but soft-spoken and very modest about his accomplishments. He was regarded with great respect by his many colleagues, associates, friends, and students and will be remembered fondly by those who survive him.

A daughter, Conduce Lacolle (Mrs. George); a granddaughter, Jessica Lacolle; and a son, Robert, survive him. Pearl, his wife of 61 years passed away in 1995. A memorial service is being planned for the spring of 2002 in Ann Arbor, Michigan.

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Message from the President

Dear Members of SIL:

Please give us your opinion! Professor Robert G. Wetzel and I would appreciate your comments/suggestions on the proposed new Mission Statement for SIL which appeared on page 5, in Volume 35 of the January 2002 issue of **SILnews**. As I indicated in my earlier message to you, we want to adopt some version of this Mission Statement at the Congress in Finland in August, 2004 so your input is important.

Please forward your comments/suggestions to: limnology@unc.edu prior to **1 March 2003**.

Thank you.

Gene E. Likens

Letter to the Editor

The impact factor of the “International Review of Hydrobiology” for the year 2000 has been reported by the Institute for Scientific Information (ISI) to be a mere 0.018. As this was hardly believable, the Publisher contacted the ISI in order to clarify this matter. Meanwhile the ISI corrected this factor to 0.319.

Even after this correction, the impact factor does not seem to be satisfactory. This, however, can be attributed to the publication of a voluminous special issue of conference proceedings published in 1998 not intended to belong to the main issue of the journal. In this year, 129 articles were published compared to only 37 in the year 1999. This high number of articles will fortunately no longer influence the impact factor to be calculated for the year 2001. We hope that this exceptional drop in impact factor will not affect the acquisition of good papers for the journal.

Norbert Walz
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Erratum

Unfortunately, my *Message from the President* which appeared in Volume 34, in the September 2001 issue of **SILnews** contained an error. **Peter Perret** from Switzerland is alive and well, but **Wolfgang Geiger** has passed away. My sincere apology for this error.

Gene E. Likens



*A possible endemic sub-species of grayling *Thymallus arcticus nigrescens* in a tributary stream of Lake Hövsgöl. Only eight species of fish are found in the lake, all but one are large species. Photo courtesy of Alex Van Alan taken June, 1997. (See cover story)*

Announcements

Major Donation to SIL from the Netherlands

The Executive Board of SIL is pleased to announce the donation of some US \$30,000 from the Vijverhof Fund of the Netherlands to the SIL program to encourage training and limnological education in developing countries. This SIL program was initiated by a sizeable donation from the Tonolli family of Pallanza, Italy, nearly two decades ago. Since that time, SIL has received several donations and has been able to award a significant number of fellowships from realized interest on the capital to young limnologists and programs in many developing countries.

The Vijverhof Fund was founded in 1992 by the Royal Netherlands Academy of Sciences on the occasion of the retirement of Dr. Sikko Parma as director of the Limnological Institute (now Centre of Limnology of the Netherlands Institute of Ecology). The name originates from the old mansion 'Vijverhof' that was part of the Institute, formed in 1957 in Nieuwersluis.

The Vijverhof Fund was founded to support limnologists and limnological organizations in developing countries, quite parallel to the objectives of the Tonolli Fund. Initial capital originated from donations on the occasion of Dr. Parma's retirement. In later years the capital was increased by modest donations from different sources. The statutes of the Vijverhof Fund specifically stated that upon dissolution the residual funds should be donated to the Tonolli Memorial Fund. On behalf of the members of SIL, we extend our most sincere appreciation to our colleagues of the Netherlands.

Robert G. Wetzel
General Secretary & Treasurer

2003: International Year of Freshwater

The United Nations General Assembly has proclaimed the year 2003 as the International Year of Freshwater. The resolution was initiated by the Government of Tajikistan and supported by 148 other countries. It encourages governments, the United Nations system and all other actors to take advantage of the Year to increase awareness of the importance of sustainable freshwater use, management and protection. It also calls upon governments, national and international organizations, non-governmental organizations and the private sector to make voluntary contributions and to lend other forms of support to the Year.

The International Year of Freshwater provides an opportunity to accelerate the implementation of the principles of integrated water resources management. The Year will be used as a platform for promoting existing activities and spearheading new initiatives in water resources at the international, regional and national levels. The International Year of Freshwater is expected to follow up on agreements reached at the World Summit on Sustainable Development (Johannesburg, September 2002).

For further information contact:

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Erratum

The two photographs of the Dead Sea, which appeared on Page 5 in **SILnews** 35, January 2002 were taken by Yehuda Peled and not by Ittai Gavrieli. Our apologies to Yehuda Peled.

UNEP.Net Freshwater Portal opens

The declining state of the world's freshwater resources, in terms of quantity and quality, may prove to be the dominant issue on the environment and development agenda of the coming century. About one-third of the world's population lives in countries with moderate to high water stress. The problems are currently most acute in Africa and West Asia, but lack of water is already a major constraint to industrial and socio-economic growth in many other areas, including China, India and Indonesia. If present consumption patterns continue, two out of every three persons on Earth will live in water-stressed conditions by the year 2025.

The United Nations Environment Programme (UNEP) opened the UNEP.Net Freshwater Portal on 2 January 2002, to help environmental assessment professionals and policy makers keep up-to-date with the most authoritative information on this critical environmental field. This portal is an online gateway to information about freshwater and is available at <http://freshwater.unep.net>. The Portal has an extensive catalogue of information resources ranging from documents, to databases, to maps and graphics, covering the most critical freshwater issues of the day: water scarcity, irrigated agriculture, water and sanitation, water quality, groundwater, transboundary water management, water and ecosystems, floods and droughts, and urban water.

The UNEP.Net Freshwater Portal is part of the UNEP.Net information system, <http://www.unep.net>, a network of cooperating centres facilitating access to authoritative environmental information from a broad range of information and data providers. Members of the UNEP.Net network are committed to making their information freely available to the whole spectrum of users of environmental information. Other special topic areas of UNEP.Net that are currently operational include climate change, the Arctic, and the GEO Data Portal which provides over 300 statistical data sets on a variety of topics.

The Freshwater Portal is operated by UNEP/GRID-Arendal in Norway, one of UNEP's partner offices dealing with environmental information systems and state of the environment reporting.

For more information, please contact:

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Limnology job and studentship notices

Notices on the availability of limnologically-oriented jobs and graduate student opportunities are now accepted for publication in SILnews and displayed on the SIL web site at www.limnology.org. There is no charge for the service at this time, which is available to SIL members and non-members.

Persons submitting notices should note the four month lead-time for the print edition of SILnews; those advertisements with short deadlines should be directed to the web site only.

Submissions should include:

- a short title describing the position (job or studentship);
- location and duration of the position;
- closing date for applications;
- a short paragraph describing the position, including any citizenship, educational or employment prerequisites; and,
- information on where potential applicants may obtain further information, including names of contact persons, telephone numbers, fax numbers, e-mail addresses, and web site addresses, where appropriate.

Submissions may be edited for length and clarity. Those deemed inappropriate to the SIL mandate will be rejected at the discretion of the SILnews Editor or the Webmaster. Submissions for the print edition of SILnews should be sent to the editor at the address on the cover of this issue.

Submissions for the SIL web site should be sent by e-mail to webmaster@limnology.org or by fax to: +1 (204) 474-7650, attention: *Gordon Goldsborough*.

New Journal

A new international scientific journal 'Biology in Inland Waters' was founded in 2000 by the Russian Academy of Sciences (RAS). This journal is published quarterly in Russia and publishes reviews and original papers dealing with all aspects of the biology and ecology of aquatic ecosystems. The Journal succeeds and continues the traditions of the publication of the Institute for Biology of Inland Waters, RAS, the 'Russian Journal of Aquatic Ecology'.

In the future, an English version of the 'Biology of Inland Waters' will be published. It will provide better information exchange between Russian and foreign scientists. The English version of the Journal will offer foreign investigators an opportunity to obtain regular information about the scientific results of Russian colleagues.

The English version of the 'Biology of Inland Waters' will be published by the International Academic Publishing House, Nauka/Interperiodicals.

Tentative annual subscription rate (4 issues) is US \$300.00 - \$400.00.

Orders and inquiries regarding subscription should be addressed to: Nina A. Ziminova, Executive Secretary, Institute for Biology of Inland Waters, RAS, Borok, Yaroslavl, 152742, Russia; Phone/fax: (8547) 2-40-42, E-mail: isdat@ibiw.yaroslavl.ru.

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The Finnish Eurowaternet

The Finnish Eurowaternet monitoring network for inland waters was created according to the Guidelines presented by the European Environment Agency.

The river network consists of 195 river sites, analysed for physical and chemical water quality variables (maximum 48 variables). Sampling depth is typically 1 m and sampling frequency at least four times a year, but can be up to 20 times a year.

The lake network consists of 253 lake sites situated in a total of 211 lake basins and five reservoirs, which together cover 61% of the lake area of the country. Lakes are sampled vertically and analysed for physical and chemical water quality variables and for chlorophyll *a* (maximum 40 variables) and occasionally for phytoplankton and benthic invertebrates. Sampling frequency is at least three times a year, but can be 12 times a year at some sites.

Both river and lake networks include old sites from existing national monitoring networks, complemented with new sites. In addition, the network includes 74 hydrological baseline sites used for the calculation of discharges and water levels for river and lake sites. The network has been in operation since 1 January 2000.

For more information, please contact:

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Congratulations and best wishes to new Ph.D. recipients! Please check out the website <http://aslo.org/phd.html> for a list of graduates who registered with the DIALOG Program between 1 October - 31 December 2001.

In addition to the Dissertation Registry, the DIALOG program includes symposia designed to foster early career development, interdisciplinary understanding and collegial networking. The DIALOG V symposium will not be held until 2003, but a new symposium is planned for 2002. DIACES, the Dissertations Symposium for the Advancement of Coastal, Estuarine and Great Lakes Science (DIACES) is sponsored by the Estuarine Research Federation and funded by the National Oceanic and Atmospheric Administration's Coastal Ocean Program. DIACES will have roughly the same format as DIALOG, but will focus on graduates whose work in any scientific field is relevant to coastal, estuarine or Great Lake environments. Selection will favor those who plan to pursue careers dedicated to better understanding or management of these systems.

DIACES will be held 28 October – 2 November 2002 at the CopaMarina Resort, Puerto Rico. The deadline for applications is 1 May 2002. Visit <http://aslo.org/phd.html> for details.

We encourage ALL recent Ph.D. recipients to register their Ph.D. dissertation. It is a great form of individual recognition, and the resulting compilation provides a global overview of emerging aquatic science research. Citations and 1-page Dissertation abstracts are available at <http://aslo.org/phd.html> in a fully searchable format, along with a convenient interactive registration form.

Recent graduates are placed on an e-mail distribution list as soon as they register with DIALOG. Please send job and other announcements to phd@whitman.edu for distribution to all participants.

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FreshwaterLife is an international project that will bring together and make readily available, wide-ranging information about the ecology and taxonomy of freshwater plants and animals via the web.

The project is still in its early stages and we are seeking collaborative partners who wish to participate by providing input to the project's direction, contributing data, helping to secure funding, collaborating on technical issues or simply by registering their support. Information on how you may participate can be found at the end of this article.

FreshwaterLife will collate information on freshwater species, habitats, conservation status and methodology for use by the freshwater scientific community and naturalists. By facilitating networking amongst those interested in freshwater life, the project will aid research and raise awareness. The project aims to support the needs of scientists, industry, regulators, environmental organisations, teachers, students and the general public by providing high-quality, fully referenced, easily accessible information.

Please visit our website at www.freshwaterlife.org, if you would like to know more. A form for registering your interest and identifying potential areas of collaboration is available at www.freshwaterlife.org/feedback/registration.htm. Alternatively, contact the project officer using the details given below.

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Biwako Declaration 2001

Water is life; lakes are vital for life on earth. Lakes support diverse ecosystems, river systems and cultures.

Lake environments are in crisis. The harmonious relationship needed between humans and nature in lake environments continues to be disrupted and has even deteriorated, despite the Biwako and Kasumigaura Declarations of 1984 and 1995.

We can only protect lakes by looking critically at the developed countries' lifestyles of the 20th century and recognizing the difficult socio-economic situation of developing countries. Since lakes are precious to all life on earth, we must make renewed efforts to conserve and restore lake environments.

The essential precondition for improvement and sustainability of lake environments is collaboration among individuals, organizations and communities to restore harmony between people and nature.

As concerned citizens, artists, administrators, politicians, journalists, scientists, students, NGOs, business and community leaders, we stakeholders have come together again on the shores of Lake Biwa in Japan to echo and embrace the spirit of the first world lake conference.

New themes have emerged from the new and diverse voices. We have heard a new emphasis on the conservation of lakes based on ecosystem management, and the close connection between lake management, culture, and spirituality.

Understanding the fruits and limitations of this conference and reflecting our deep concern, we call for action.

In particular we must:

1. Build and strengthen partnerships among individuals and organizations within the lake community.
2. Disclose and share information, and promote environmental education, and build a capacity of people.
3. Promote scientific research and monitoring.
4. Promote integrated water resource management of lake and river basin systems.
5. Promote international cooperation and establish a global lake alliance.

6. Explore new and innovative financial arrangements.

Lake Conference Secretariat

9th International Conference on the Conservation and Management of Lakes, Biwako2001

c/o Environmental Policy Division of Shiga Prefectural Government

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November 16, 2001

SIL CONGRESS 2004

The next Congress of SIL will be held in Lahti, Finland, 8-14 August 2004. The City of Lahti, a gateway to the Finnish Lake District, is located 100 km northeast of Helsinki (the capital city of Finland). Lahti is known for its winter sports, skiing and ski jumping, as well as for a rich variety of cultural and artistic activities. Lahti with its 100,000 inhabitants is a friendly and hospitable city which is located by Lake Vesijärvi and the lofty green Salpausselkä ridges of glacial origin.

For further information on the 29th Congress of SIL in Lahti, please visit our website at: www.palmenia.helsinki.fi/congress/SIL2004.

Timo Kairesalo

On behalf of the Organizing Committee

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Book Reviews

A Water Quality Assessment of the Former Soviet Union

Edited by Vitaly Kimstach, Michel Meybeck, and Ellysar Baroudy
611 pp., 1998
E&FN Spon, an imprint of Routledge - London, England
ISBN 0-419-23920-0
\$125 US Hardbound

Information on water quality is central to assessing the health of the earth's ecosystems. In the Soviet Union, a wealth of hydrochemical and hydrobiological data were collected, but for largely political reasons much of the information was inaccessible to Russian or foreign scientists and managers. Such restrictions greatly reduced the utility of water quality data collected during the Soviet era, and made the water quality of the Soviet Union almost unknown to the international scientific community.

With the breakup of the Soviet Union, legal restrictions on the dissemination of water quality data disappeared, yet access to information remained limited. In part this was due to logistical challenges associated with acquiring data that might only reside in regional laboratories in non-digital form, and also because Russian language publications were of limited utility to most non-Russian speakers.

A Water Quality Assessment of the Former Soviet Union (edited by Kimstach, Meybeck, and Baroudy) aims to present a comprehensive English-language summary of hydrochemical and hydrobiological conditions in the Former Soviet Union (FSU). A large number of authors contributed to the book, many of who have worked for the Russian/Soviet government agencies responsible for water quality assessment. Thus, the team of authors is uniquely qualified to access data and evaluate information on water quality in the former Soviet Union.

The book is divided into 20 chapters, some providing general overviews of water quality issues in the former Soviet Union and others presenting more detailed case studies of individual water bodies or regions. It begins with a nice overview chapter by Igor Shiklomanov and colleagues on water

resources, which sets the stage for the rest of the book. The second chapter, written by Tsirkunov *et al.*, discusses the "natural" geochemical characteristics of waters of the former Soviet Union, relying primarily on data prior to 1961 when anthropogenic influences are thought to have been minimal.

Following a chapter on water use and anthropogenic influences written by Chernogaeva and Lvov, another chapter by Tsirkunov is presented, this time on the water quality monitoring system of the former Soviet Union. It is a short chapter, but one that is central to understanding the rest of the book, as it discusses the system that produced water quality data in the former Soviet Union. In addition to discussing the strengths of the Soviet water quality monitoring system (and there are many strengths, such as the tremendous number of stations and constituents that were sampled, as well as the frequently long periods of record), weaknesses are also highlighted, many related to issues of quality control.

Chapters 5-11 address specific water quality problems, including salinisation, eutrophication, groundwater contamination, heavy metals, organic pollutants, microbial pollution, and acidification. These chapters all are valuable resources for anyone interested in learning about these issues in waters of the former Soviet Union. Chapter 12, by Gordeev and Tsirkunov, discusses fluvial transport of dissolved and suspended materials. As in many of the other chapters, a large amount of information is summarized in tables, which facilitates access to the data by interested readers.

After Chapter 13, which focuses on hydrobiological monitoring, the remaining chapters discuss the biogeochemistry of specific water bodies or regions (the lower Don River basin, the Amu Darya River, Rybinsk reservoir, the Dnieper basin, Lake Baikal, Lake Ladoga, and water resources of the Moscow Region). Given the significance of these systems (e.g., Lake Baikal is the largest lake on earth, Lake Ladoga is the largest lake in Europe), the summaries provided here, including reviews of relevant Russian literature, are welcome additions to the hydrochemical and hydrobiological literature. Much of this information has been previously unavailable to the international scientific community.

Overall, this book is an extremely valuable resource for anyone interested in freshwater resources of the former Soviet Union.

Given the massive amount of freshwater in the former Soviet Union, *A Water Quality Assessment of the Former Soviet Union* is also an important resource for scientists working on global water quality issues. On the down side, the book is rather expensive (\$125 US), which to some degree will limit its distribution. I would also have liked to see more discussion of quality control issues throughout the book, although some chapters did cover this issue well (particularly Chapter 4).

In summary, I would strongly recommend this book to scientists and managers interested in water resources and water quality of the former Soviet Union. It provides a detailed summary of the state of knowledge up to the early 1990s and is an excellent introduction to the vast Russian literature. For foreign scientists interested in pursuing research in the former Soviet Union, it also provides an extremely useful overview of the activities of Russian scientists involved in freshwater research in Russia and the former Soviet Union.

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Biodiversity in Wetlands: Assessment, Function and Conservation (Volume 2)

Edited by B. Gopal, W.J. Junk and J.A. Davis
312 pp., paperbound, 2001
Backhuys Publishers, Leiden, The Netherlands
ISBN 90-5782-087-0
EURO 80.00/US \$76.00

This is the second of two volumes, the first of which was published in 2000. The overall objectives of the editors was to collect a series of papers that reflect the state of understanding of processes giving rise to and sustaining biodiversity in wetlands, the threats, and the status of conservation efforts aimed at wetland biodiversity. The emphasis of each of the first ten chapters ranges from historical changes, management, and restoration of the Rhône River and Lower Danube River in Europe. A chapter from the Netherlands focuses on plant diversity and rare species and

management requirements to preserve these habitats. Following a similar theme, a chapter on wetlands in southwest Australia considers diversity of aquatic invertebrates, plants, and waterbirds. As might be expected, diversity indices for the various biotic groups is different but points to the need to conserve a range of wetland types to ensure adequate protection for the most diverse wetland habitats. Wetlands in a broad belt across central Africa are included in the next two chapters. It is clear that vegetation has been best studied and to a lesser extent other biota such as the fishes, and aquatic macro- and micro- invertebrates. Government policies that promote wise use and conservation of wetlands, though relatively recent, serve as one good approach to ensure protection of biodiversity in this region. The next two chapters provide a nice introduction to key wetland areas of South America, though the peatlands in the south of Argentina and Chile, are not mentioned. I liked Neiff's discussion of biodiversity as a sensitive indicator of life conditions in contrast to some index of functional complexity and fluxes within South American wetlands. The final chapters from Asia consider biodiversity at two extreme scales. One is an enumeration of the biodiversity of an important wetland in northeast Rajasthan, India. The other relates seasonal monsoons with wetlands to emphasize the importance of climate in influencing wetland biodiversity in South Asia. The final chapter is a synthesis and overview by the editors themselves on the status and future needs of wetland biodiversity. While all of the other chapters are superb overviews, this last chapter is a general account that sets out the definitions, characteristics, the assessment, abiotic and biotic determinants, and functions of wetland biodiversity. A very nice chapter and must reading for every wetland student interested in the topic!

To quote the last line in the book: "Biodiversity in wetlands deserves priority attention". The message is loud and clear and in so doing accomplishes its objectives. I give the book high marks. As a resource on the topic, it is a must. If wetlands are a priority subject, I recommend it to all university and public libraries. The cost will probably prohibit most from purchasing it for their personal libraries, as it will for many public institutions in regions discussed in the book.

Barry G. Warner
Wetlands Research Centre
University of Waterloo
Canada

Common Freshwater Algae of the United States: An illustrated Key to the Genera (Excluding the Diatoms)

By Gary E. Dillard

173 pp., 1999

E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart

ISBN 3-443-50026-9

DM 58.00/US \$34.00

Common Freshwater Algae of the United States by Gary E. Dillard takes an innovative approach to the challenging task of introducing students to the morphologically diverse world of algal taxonomy. Traditionally, students and aquatic ecologists with little experience have begun this arduous endeavour by learning the myriad of morphological terms associated with taxonomy. Skill is gained through the often painful experience of identifying specimen after specimen, while working through numerous phylogenetic-based keys.

A working knowledge of even the most commonly encountered genera takes considerable time and effort. I personally have never seen an individual acquire a high level of taxonomic expertise without a mentor's guidance. The emphasis on growth forms in this key, rather than the often ambiguous phylogenetic characteristics of algae, should help the novice student gain skill and confidence quickly, even when working principally on their own. The initial familiarity with the common forms of algae acquired using this key can substantially reduce the effort needed to develop a working knowledge of the field.

The coverage of the genera commonly encountered in the Continental United States is reasonably thorough, but I personally would prefer to see a more substantive survey. The text would be more useful in my introductory courses if it included illustrations for all of the genera described in the key. I would also like to see more than one illustration for some of the more morphologically diverse genera. Also, as a phycologist working in Canada, I am disappointed that the survey stops at the Canada – United States border. The wealth of information on the algal taxa of northern habitats is particularly rich and would have made a superb addition to this key.

The exclusion of the Bacillariophyceae from such a general key is regrettable. The prevalence of diatoms in all the traditional algal habitats ensures that anyone examining natural samples will frequently encounter representatives from this group. Hence, in addition to this key, the novice phycologist will also be compelled to consult a separate taxonomic key for the diatoms. This could complicate the learning process, as the novice may arrive at the group only after the elimination of all other possibilities. Subsequent examination of specimens to identify the diatom genera will necessitate the use of a key structured instead, around phylogenetic characteristics, hence confusing the novice. This could have been avoided by including the diatoms as in the earlier introductory guide "How to Know the Freshwater Algae" by G.W. Prescott (1978).

The introduction outlining algal habitats and collection methods is somewhat biased towards the large algae. In taking this approach the author is likely attempting to simplify the learning experience, and reasonably so. However, neglecting to mention the Utermohl method for enumerating whole water samples fails to emphasize the importance of the nanno-, ultra- and picoplankton that predominate in a great many water bodies. Indeed, many of the genera illustrated in this text would not normally be evident from net hauls. Furthermore, many large mucilaginous colonies with small individual cells, such as *Merismopedia*, tend not to hold together when collected by net haul, and consequently, are to varying degrees, a casualty of the collection procedure.

Despite what I perceive to be the aforementioned shortcomings of this key, I strongly recommend the book and its practical approach to developing an understanding of freshwater algae. In my experience, it can be a very effective teaching aid for the laboratory component of an introductory course in phycology. It clearly should also be found on the bookshelf of all professional aquatic biologists and fledgling phycologists.

Reference

Prescott, G.W. 1978. How to Know the Freshwater Algae. Wm. C. Brown Company Publishers. 3rd Edition. Dubuque, Iowa. 293 pp.

Chris Earle

Concordia University College of Alberta
Canada

Global Perspectives on River Conservation (Science, Policy and Practice)

Edited by P.J. Boon, B.R. Davies, and G.E. Petts
548 pp., 2000
John Wiley & Sons Ltd.
ISBN 0471960624
£ 125.00

As we all know, human impact has degraded, fragmented and destroyed river ecosystems everywhere. There is no doubt river conservation is a global imperative, as stated in the introduction to this book. The importance of definitions (e.g., conservation, sustainability), first-world feelings of superiority, and third-world socio-economic realities, clearly emphasize the problem. When reading the chapters, all well-known concepts and features of rivers and water use are repeatedly paraded, and we are aware once more that human growth ultimately underlies regional, as well as global, water problems. The book makes it clear that the 1970s “Limits to Growth” concept of Meadows *et al.* (1972, 1992) is repressed in practice and remains mostly theory so far. Nevertheless, the integrated watershed management concept recommended by the authors is already well-accepted, as it combines consensus-based round table strategies with qualitative (pollution), quantitative (water abstraction), ecomorphological (channelization) and land use aspects. The catchment approach is undermined by political borders, even in this book (e.g., Mexico is excluded from the Colorado/Rio Grande, Chapter 1; Switzerland is shown as a “white island” within Europe, despite sharing the headwaters of the Rhine, Rhone and Danube Rivers, Chapter 3).

The book is well organized and divided into two parts. Part I presents a geographical overview and aspects of river conservation in 12 large zones around the globe. Part II addresses constraints and opportunities for problems and solutions with a major focus on countries like the USA, Australia, South Africa and the UK. Whilst Part I reads like an obituary of biodiversity of lotic aquatic ecosystems, Part II sounds more optimistic, with topics such as the importance of scaling, flow regime, river classification, water legislation and popular participation in river conservation and restoration. In the middle of the book, representative coloured pictures illustrate the topics discussed. Many interesting data compilations (tables and figures) on rivers, water use, species diversity, etc., are given and a great quantity of references, as well as links to internet data banks (Chapter 1), enables interested readers to update the information. As the chapters

in Part I are similarly structured but written by different authors, overlaps are inevitable, even with some chapters in Part II. Whilst this may please some readers, as individual foci are presented and single chapters can be read independently of the rest of the book, the topics and geographical information are scattered throughout the book.

This book is a scientific state-of-the-art, combining basic and applied research, and discussing socio-economic and political constraints. It is a limnological documentation of the differences between temperate, tropical and arid (temporary) rivers, revealing, for example, where the river continuum concept of Vannote *et al.* (1980) works, and where it does not. It also shows that building dams in tropical zones that were initially developed for temperate zones may be disastrous. The case studies presented for all continents attract the experienced generalist to whom the book is addressed. The challenging statements about river rehabilitation and conservation realistically reflect the socio-economic and political problems of implementation in different parts of the world. However, despite many valuable recommendations, the globally poor enforcement of environmental impact assessments is not at all promising. The book documents the ongoing exploitation of Third World countries by First World countries and raises the question. What is the basis of environmental protection: the use of first-world technology to restore destroyed ecosystems, or the will to conserve still intact ecosystems? Another big question – that of the long-term resilience of nature to human impact – remains unanswered.

In summary, the book can be highly recommended, as it provides a comprehensive and updated review of global river conservation perspectives. It promotes the understanding of complex aquatic ecosystems and integrative processes to solve the environmental problems we all share.

References

- Meadows, D.H., Meadows, D.L., Randers, J. and Behrens, C.W. 1972. Limits to Growth. Pan, London.
- Meadows, D.H., Meadows, D.L. and Randers, J. 1992. Beyond the limits: Confronting Global Collapse, Envisioning a Sustainable Future. Earthscan, London.
- Vannote, R.L., Minshall, G.W., Cummins, K.W., Sedell, J.R. and Cushing, C.E. 1980. The river continuum concept. Canadian Journal of Fisheries and Aquatic Sciences 37:130-137.

Jürg Bloesch

Swiss Federal Institute for Environmental Science and Technology (EAWAG), Switzerland

The Central Amazon Floodplain: Actual Use and Options for a Sustainable Management

Edited by W.J. Junk, J.J. Ohly, M.T.F. Piedade and
M.G.M. Soares

584 pp., 2000

Backhuys Publishers, Leiden, The Netherlands
ISBN 90-5782-074-9

Hardbound, Dutch Guilders 296.00/US \$148

The sustainable management of wetlands is a key topic for ecologists and the public alike because wetlands, and their inherent biodiversity, are being lost at an alarming rate worldwide. Vast amounts of pristine wetlands still exist in tropical South America. However, during the last decade, there has been increasing public pressure to utilise them. Wetlands are considered very valuable because they provide land resources for agriculture and animal ranching and also offer fish and forest products, water transport facilities, and tourism. Lack of knowledge of sustainable management of wetlands by both politicians and the public often leads to inadequate use of the resources and, at times, serious damage to the wetlands. Recognition of these problems has led to a proliferation of ecological studies on wetlands in recent years. Because of this, our knowledge base has matured to the point where it is necessary to establish a general reference and review book for those interested in sustainable management of wetlands.

The book is organised into 24 chapters grouped into several main themes which encompass a coherent analysis of the ecological situation, the history of land use, utilisation of the resource, the socio-economic situation of humans living on the floodplain, and the ecological threats of human activities on the Central Amazon floodplain. It starts with a very excellent introductory chapter. A comprehensive and continental-wide overview of neotropical floodplain development and human occupation of Central Amazon in the modern era are given in Chapters 2 and 3. In Chapter 4, the author explains the “flood pulse concept”, which determines the production period and the area available for production, the multiple use of the Amazonian *varzea* (floodplains of white water rivers of Amazonia are locally called *varzeas*) and the decentralised and participated management of natural resources. The concept of sustainable management requires both the maintenance of habitat biodiversity and ecosystem function and the profitability of

small-scale activities. In order to guarantee the optimal use of all resources, a combination of agro-economic and hydro-ecological zoning is suggested. The climate and hydrology, chemical analysis and bioelement inventory of contrasting Amazonian *varzea* forest soils and water, the prospects and constraints of agricultural development of the *varzea* with regard to annual, non-conventional and permanent crop cultivation with their feasible alternatives for Amazonian floodplains, are discussed in Chapters 5 through 10. Details of the agro-forestry of home gardens and family farming systems, natural grasslands and herbaceous plants and their uses, artificial pastures, animal husbandry perspectives, and diseases of cattle in the central Amazon floodplain are presented in Chapters 11 through 16. Productivity and chemical composition of fruits from trees in the white water floodplains and importance of fishes, as well as commercial fisheries, are detailed in Chapters 17 through 20. Terrestrial arthropods of the soils of the inundated forests and deforested floodplains of white water rivers are described in Chapter 21. Mercury in the floodplain from the gold mines, its contamination sites, toxicity levels, bioindicators and dispersion pathways of different mercury species are discussed in Chapter 22. In order to reduce conflicts of interest, details of the legislation and special regulations required for authorisation of land use in the *varzea* floodplain are provided (Chapter 23). The final chapter contains very important and interesting information for evaluating the constraints surrounding future land use. In this chapter, the actual use and the available options for sustainable management of the Central Amazonian floodplain are summarized in detail.

This is the first book that deals in a coherent way with the sustainable management of tropical wetlands. The authors provide a strong conceptual background to their analyses and are enthusiastic advocates of the interdisciplinary approach. The book represents an extraordinary contribution to the understanding of the Central Amazon floodplain ecosystem providing an extremely broad analysis of the most important management aspects. This book offers an abundance of information on the whole palette of feasible and practical use-options for the sustainable management of the Central Amazon floodplain ecosystem. It provides an integrated approach to the analyses of the *varzea* situation by examining both the ecological and socio-economic repercussions of human usage of this unique ecosystem. The authors’ detailed and comprehensive analysis culminates in the development of a new and higher standard for land use in

the Central Amazon floodplain.

This book provides a timely and extremely valuable synthesis of the current state of knowledge and heightened public awareness surrounding the sustainable management of large and relatively pristine wetlands in tropical South America. The issues covered extend well beyond those applicable only to Central Amazon wetlands, making it well suited to wetland ecologists and decision makers who want to understand more about sustainable management of wetlands. I strongly recommend it to anyone interested in this exciting research subject.

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The Diatoms: Applications for the Environmental and Earth Sciences

Edited by Eugene F. Stoermer and John P. Smol
484 pp., 1999, Hardbound
Cambridge University Press
ISBN 0-521-58281-4
US \$120.00

The diatoms are a diverse and abundant group of microscopic algae occurring in a wide variety of aquatic habitats. One of their most notable features is the presence of a cell wall of opaline silica (frustule), with an array of intricate, delicate, species-specific patterns formed within the silica shell. It is this feature that attracted most early microscopists to the diatoms, and continues to be one of their most useful features, providing a long lasting and species-specific record of their presence. Their ubiquitous distribution, rapid reproduction, great diversity, and close association to local environmental conditions have lead to the widespread application of diatomology to an array of environmental sciences. Although their microscopic size and complicated systematics slowed research through much of the early 20th century, vast improvements in microscopy and taxonomy during the latter half of the century have lead to an expanding body of diatom research. Within the last several decades, use of both extant and fossil diatom remains have exploded into a myriad of applications in the environmental and earth sciences, and Stoermer and Smol have done a good job of encompassing many of these applications within a single volume.

The book is a composite of invited chapters written by some of the world leaders in each of the fields. The book focuses on applications of diatoms to a variety of disciplines, but provides little background on diatom biology, physiology, morphology and taxonomy. However, both editors recognized this shortfall and provide the reader with many useful references to this background. This book would make a valuable reference for professionals involved in environmental assessment, and would complement many upper-level or graduate courses as well. Depending on the course or research interest, the reader will likely find one or more chapters of interest, but very few courses would use the entire text. Nonetheless, many of the chapters should be broadly useful.

Chapters that are likely to be of general interest include the Introduction that is written by the editors and provides an effective overview of the discipline and illuminates many of the broad trends in diatomology over the last century. Chapter 1 by Stevenson and Pan focuses on streams and rivers, but also provides more broadly interesting information on the general biological constraints of diatoms and how they may most effectively be used as environmental indicators. Due to the strong influence of pH on diatom species composition, and because of the environmental problems associated with acid rain, much of the early quantitative work and many of the more recent advances in numerical techniques, have come from within this branch of diatom research. Chapter 5 by Battarbee *et al.* do an excellent job of efficiently summarizing these advances and would serve as an excellent introductory chapter for researchers interested in any type of quantitative environmental reconstruction using diatoms, i.e., paleolimnology.

With chapters covering 22 different fields in diatom research, the book is too extensive to review each chapter in detail, however suffice to say that it contains a considerable wealth of information and expertise covering a wide variety of disciplines. Many of the research areas, including climate change, eutrophication, atmospheric transport, and oil and gas exploration, are now at the forefront of environmental research in the 21st century. Coupled with chapters on alluring topics such as using diatoms in forensic science or on the role of toxic and harmful marine diatoms within coastal ecosystems, the book provides a thorough and interesting summary of the uses of diatoms in the environmental and earth sciences. This reference would be a useful addition to the library of both applied environmental consultants and theoretical aquatic scientists.

John Stockner
University of British Columbia (UBC)
Canada

Darren Bos
Parks Canada

Calendar of Events

2002

Third International Conference on Water Resources and Environment Research (ICWRER)
Subtitle: Water Quantity & Quality Aspects in Modelling and Management of Ecosystems.
22 - 26 July 2002

Dresden, Germany

Contact: Conference Secretariat

Cathleen Schimmek, Gisela Schöler

Conference Secretariat ICWRER 2002

Institute of Hydrology and Meteorology

Dresden University of Technology

Wuerzburger Str. 46

D - 01187 Dresden, Germany

icwrer2002@mailbox.tu-dresden.de

Tel: +49 351 463 3931

Fax: +49 351 463 7162

www.tu-dresden.de/fghihm/hydrologie.html

8th International Conference on Salt Lake Research.

23 - 26 July 2002

Zhemchuzhny, Republic of Khakasia

Russia

Contact: Institute of Biophysics

Akademgorodok

Krasnoyarsk, 660036

Russia

saltlake@ibp.ru

Phone: +7 3912 494358

Fax: +7 3912 433400

<http://www.ibp.ru/lakes>

12th Stockholm Water Symposium - Balancing Competing Water Uses - Present Status and New Prospects.

12 - 15 August 2002

Stockholm, Sweden

Contact: David Trouba

The Stockholm International Water Institute (SIWI)

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dave.trouba@siwi.org

or

Stephanie Blenckner

The Stockholm International Water Institute (SIWI)

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stephanie.blenckner@siwi.org

www.siwi.org

4th International Conference on Reservoir Limnology and Water Quality.

12 - 18 August 2002

„eské Budějovice, Czech Republic

Contact: Jakub Borovec, Conference Secretary

Hydrobiological Institute

Academy of Sciences of the Czech Republic

Na sádkách 7

CZ-370 05 „eské Budějovice

Czech Republic

reslim@hbu.cas.cz

Phone: +420-38-777 5879

Fax: +420-38-530 0248

34th International IAD Conference.

26 - 31 August 2002

Tulcea, Romania

Contact: Gheorghe Brezeanu

Institute of Biology of Romanian Academy

296 Spl. Independentei St.

C.P. 56-53

RO-79651

Bucharest, Romania

gbrez@ibiol.ro and abrez@ibiol.ro

(Please use both addresses)

Phone: 004 01/2239072

Fax: 004 01/2219071

www.iad.gs

11th International Symposium on Aquatic Weeds European Weed Research Society.

2 - 6 September 2002

Moliets et Maâ, France

Contact: Cemagref

Symposium EWRS

Unité de Recherche Qualité des Eaux

50, Avenue de Verdun

33612 CESTAS CEDEX, France

ewrs.2002@bordeaux.cemagref.fr

Phone: (33) 5 57 89 08 54

Fax: (33) 5 57 89 08 01

<http://www.bordeaux.cemagref.fr/qebx/ewrs2002>

The Third International Symposium Speciation in Ancient Lakes (SIAL-2002).

2 - 7 September 2002

Irkutsk, Russia

Contact: Oleg A. Timoshkin

Vice-Chair of the Organizing Committee

Limnological Institute SD RAS

Baikal International Centre for Ecological Research

Ulan-Batorskaya, 3

P.O. Box 4199

664 033, Irkutsk, Russia

tim@lin.irk.ru

Phone: +3952-46-02-18

Fax: +3952-46-04-05

5th International Congress of Limnology and Oceanography (ICLO) - Organized by Union des Océanographes de France et Association Française de Limnologie.

9 - 12 September 2002

Paris, France

Contact: Institut Océanographique

195, rue Saint-Jacques

75005 Paris

100670.615@compuserve.com

or

jf.pavillon@oceanoo.org

Phone: UOF: +33 (0) 1 46 33 16 90

Phone: AFL: +33 (0) 1 44 32 3885

Fax: +33 (0) 1 40 51 73 16

www.uof-assoc.org

First International Conference on Water and Health ICWH 2002 - Towards a New Frontier in the Protection of Drinking Water.

22 - 25 September 2002 (new dates)

University of Ottawa

Ottawa, Ontario, Canada

Contact: The ICWH 2002 Conference Secretariat

Centre for Water and the Environment

Queen's University

Kingston, Ontario, Canada

K7L 3N6

cwe@civil.queensu.ca

Phone: (613) 533-6438

Fax: (613) 533-2128

International Conference on Residence Times in Lakes: Science, Management, Education.

29 September - 3 October 2002

Bolsena (Viterbo), Italy

Contact: Dr. Piero Bruni

mcavlo@tin.it or info@bolsenaconference.net

Fax: +(39) 0761 342924

<http://www.bolsenaconference.net/>

Symposium on Aquatic Microbial Ecology (SAME-8) - jointly sponsored by the SIL Working Group on Aquatic Microbial Ecology and the European Marine Microbiology Symposium Committee.

25 - 30 October 2002

Taormina, Italy

Contact: Organizing Secretariat

Lisciotto Viaggi

Ufficio Congressi

Via Garibaldi, 106/A

98100 Messina, Italy

meetings@lisciotto.it

Tel/Fax: ++39 090 711109

www.SAME-8.it

NALMS 2002: 22nd International Symposium of the North American Lake Management Society.
30 October - 1 November 2002
Anchorage, Alaska
Contact: Terry Thiessen
NALMS Conference Coordinator
P.O. Box 5443
Madison, WI 53705-0443
USA
thiessen@nalms.org
Phone: (608) 233-2836
Fax: (608) 233-3186
www.nalms.org

2003

The 3rd International Limnogeology Congress (ILIC).
29 March - 2 April 2003
Tucson, Arizona, USA
Contacts:
Theme session proposals:
Andrew Cohen
General Chair of the Congress
Dept. of Geosciences
University of Arizona
Tucson, AZ 85721 USA
acohen@geo.arizona.edu
Phone: 1 (520) 621-4691
Fax: 1 (520) 621-2672
Field trip proposals:
David Dettman, Field Trip Coordinator
dettman@geo.arizona.edu
Housing and Registration: Noah Lopez
noahl@u.arizona.edu

2nd International Symposium on Contaminated Sediments: Characterisation, Evaluation, Mitigation/Restoration, Management Strategy Performance.
26 - 28 May 2003
Quebec City, Quebec, Canada
Contact: H el ene Tremblay
Secretariat of the Symposium on Contaminated Sediments
D epartement de g eologie et de g enie g eologique
Universit e Laval
Qu ebec, QC
G1K 7P4
Canada
htrembla@ggl.ulaval.ca
Phone: 1 (418) 656-2193
Fax: 1 (418) 656-7339
<http://www.SCS2003.ggl.ulaval.ca>

51st Annual Meeting
North American Benthological Society.
May/June 2003
Athens, Georgia, USA
<http://www.benthos.org/>

The 4th Conference of SIL Working Group on Aquatic Birds - Limnology and Waterbirds 2003.
4 - 9 August 2003
Sackville, New Brunswick, Canada
Contact: Joseph Kerekes
Environment Canada
45 Alderney Drive
Dartmouth, Nova Scotia
B2Y 2N6, Canada
joe.kerekes@ec.gc.ca
Phone: (902) 426-6356
Fax: (902) 426-4457
<http://www.links.umoncton.ca/lw/>

The Ninth International Symposium on Aquatic Oligochaete Biology.
September 2003
The Netherlands
Contact: Piet F.M. Verdonschot
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Team Freshwater Ecology
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2004

52nd Annual Meeting
North American Benthological Society.
May/June 2004
Vancouver, British Columbia, Canada
<http://www.benthos.org/>

SIL XXIX Congress.
8 - 14 August 2004
Lahti, Finland
Contact: Congress Management Office
University of Helsinki
Palmenia Centre for Research and Continuing Education
Kirkkokatu 16
15140 Lahti
Finland
sil2004@latkk.helsinki.fi
Phone: + 358 3 892 11
Fax: + 358 3 892 20219
www.palmenia.helsinki.fi/congress/SIL2004

2005

53rd Annual Meeting
North American Benthological Society (this is being planned as a joint meeting with the Council of Aquatic Sciences).
10 - 15 July 2005
Portland, Oregon, USA
<http://www.benthos.org/> and
www.nalms.org/aqscoun/aqscoun.htm

2006

The Tenth International Symposium on Aquatic Oligochaete Biology.
2006
Tentatively scheduled to convene at:
The Institute of Hydrobiology
Chinese Academy of Sciences
Wuhan Hubei, People's Republic of China
Contact: Hongzhu Wang
Chair of the symposium organizing committee
State Key Laboratory of Freshwater Ecology and Biotechnology Institute of Hydrobiology
Chinese Academy of Sciences
Wuhan Hubei 430072
People's Republic of China
wanghz@ihb.ac.cn or hongzhu.wang@nrm.se
Phone: (86) 27 8764-7719
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The Fourth World Water Forum
19 - 25 March 2006
Montreal, Quebec
Canada

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