



SIL news

Volume 57 - December 2010

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1 APRIL 2011

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

Editor's Foreword

This SILnews letter (SILnews 57) will appear just four months after the 31st SIL Congress that was held- for the first time in Africa- from 15 to 21 August in Cape Town, South Africa. Having also attended several earlier meetings held in Europe and North America, I got the impression that this was a smaller meeting. But as our SIL President Dr. Brian Moss remarks (see the following item in the newsletter) this was perhaps the most successful triennial SIL congresses both with regard to the parallel lecture sessions, refreshment breaks and buffet lunches. In brief, the meeting was a total success from the beginning to the end, with post conference excursions. The credit for this very successful organization goes to the local organizing committee chaired by Johan Grobbelaar. I therefore heartily congratulate Johan G. on behalf of the SILnews letter.

The Newsletter starts with a brief account of Brian entitled *Thoughts from the President*, followed by a Report of Johan Grobbelaar, and some comments from our South African limnologists, two of the diehards, Dr. Rob Hart and Dr. Brian Allanson. Brian was awarded the coveted Einar Naumann-August Thienemann Medal during the General Assembly of the Congress on 16 August 2010, along with Dr. Erik Jeppesen (Denmark) and Dr. J. L. Meyer (N. America). I take this opportunity to congratulate all the three medal winners. Yet another good news is that in Cape Town the SIL officially launched *Inland Waters*, the international society's new peer-reviewed journal (See Report on

page 9 in this Issue by Dr. J. John).

The sad news is that two of world's most eminent limnologist. Dr. Clifford Mortimer and Dr. Jaroslav Hrbáček passed away this year. I was lucky to receive their obituaries in time to include in this newsletter.

The readers will recall that only in June 2010 did we publish in short the life-time achievements of Dr. Mortimer who had turned 99 in February 2010 and I had all hopes that SILnews letter would felicitate Clifford in 2011 on his reaching 100 years of age.

Last, I have included the short reports and announcements of the SIL Working Groups and new books. I wish you all a happy winter holiday period.

Ramesh D. Gulati
SIL news Editor



Reports from South Africa

Thoughts from the President

Small, said the British economist, E.F. Schumacher, is beautiful. And so often this proves to be the case. The Thirty-first Congress of SIL, held in Cape Town was small by European and North American standards, approaching 400 people, and organised by a tiny group of five, but it was perhaps one of the most successful Congresses I have known. It was a very happy Congress, with people easily able to meet and talk with one another, not least over the collective buffet lunches held just a few tens of metres from the lecture venues, in a hall where the posters were also displayed and the exhibitors had their stands. Cape Town proved a safe and very attractive location; we enjoyed the life around the harbour, the wonderful flora of Table Mountain, even the tourist kitsch of photographing ourselves at the Cape of Good Hope and climbing our way in the rain to the old lighthouse that commands the meeting of the Indian and Atlantic Oceans. Our greatest thanks are owed to Johann Grobelaar, Brian Allanson, Jenny Day, Mike Silerbauer and Carin van Ginkel for their organisation and to Johann's family and staff for so effectively putting the practicalities into action.

And now we look forward to the next Congress in 2013 in Budapest, but there is work to do first, not only for the Hungarian organising committee, but also for the rest of us. SIL is quite a small scientific society; like many such societies we have been losing members through retirement and decease faster than we have been acquiring them. The reasons are likely to be many and to differ in different countries, but it is clear that whatever they are, we have to do something if SIL is to have a long-term future. And that something is urgently to recruit new young members. SIL has a unique niche. It is truly international; it goes out of its way to help students in under-privileged countries; it gives a global perspective at its Congresses; relationships at Congresses are very friendly and new contacts are made; there is space to learn new things with much less of the pressured competitiveness that has come to characterise many other meetings. SIL is too precious to be allowed to dwindle. I would like us to have reversed the trend in membership by the next Congress but I need help from all of you to do this.

The first thing to do is for everyone able to do so to try to recruit

just one new member each, hopefully each year for the immediate future. Alone that would more than reverse the trend. But please don't leave it to someone else. There are many graduate students, post docs and young staff in post in Universities, Research Institutes and Government organisations who are involved with inland waters but who are not members. Subscriptions are not expensive for most countries; you could probably afford to start someone off by giving them their first-years' subscription as a birthday or graduation or Christmas present. In return, as well as the favourable rates for attending Congresses, they will get a brand new journal, *Inland Waters*, that will hold true to SIL's international mission and our very informative newsletter, SIL News. But importantly, they will be contributing to an internationalism that the world sorely needs in every endeavour.

The second thing that will help is that if our international representatives can engineer a formal linkage between their national limnological society and SIL so that members are encouraged to subscribe to both together, everyone will benefit and if there can be some small financial concession for students (SIL offers very much reduced rates for students) that will also help. Some European countries already have this arrangement and they have among our strongest memberships.

The third approach is for SIL to strengthen its links with other societies. We are already working with the Freshwater Biological Association to publish our journal and since our objectives are closely similar, I think we can look forward to greater collaboration. Our Chinese colleagues organised a brilliant meeting in Nanjing last year under SIL's banner and I think we should foster as many such joint meetings as we can. Our approach has always been outward-looking. Now is the time to further that.

Fourthly, we need to move even more into the means of communication that are becoming popular. I am afraid I don't have much command of this area, but I hear of Twitter and Facebook and wonder what we should be doing and would appreciate suggestions from those of you who are more familiar with these things to be able to keep up a conversation among members between Congresses.

But lastly we have to continue to believe that what we do is essential and worthwhile and to promote that at every opportunity. The



Jack Jones (RIGHT, USA) and David Hamilton (NZ) (editor and chief associate editor of the new SIL Journal *Inland Waters*)



Lorraine Janus and Karen Moore (USA).

solutions to the world's problems may partly be economic and social, but at root they are environmental. We should not be lured into taking a side or back seat simply because, for the infinitesimal slice of global history that has been dominated by a very few economic systems, money has talked. For ninety-nine point nine recurring percent of that time carbon, nitrogen phosphorus and water have held the floor and my unswerving conviction is that the state of our natural systems will determine our future history. Good scientific societies, like SIL, must survive to beam out this message incessantly and panglobally.

Brian Moss
President of SIL

31st SIL Congress, Cape Town, South Africa: From the LOC

“Cometh the night, it will be alright!”

Brian Moss sent this saying used by musicians, when the prospects of organising the congress looked bleak after the Conference Organisers withdrew. It made us realize that nothing is impossible and we got our heads down and did the job (even renaming Africa to be Arica).

Following a formal bid to host the congress in 2001 during the 28th congress in Melbourne and partial acceptance in 2004 at the 29th congress in Lahti, it was awarded to South Africa in 2007 at the 30th congress in Montreal. Unfortunately several of the initial lobbyists retired or moved to greener pastures, which meant that only a handful of us drove the process. The LOC consisted of:

- Johan Grobbelaar (chairperson)
- Brian Allanson (convenor of the scientific committee)
- Mike Silberbauer (IT and logistics coordinator)
- Carin van Ginkel
- Jenny Day

The University of the Free State provided assistance with the finances, book keeping, web space, IT, local marketing and some administrative support. Post graduate students and staff from the University of Cape Town helped with the registration and excursions, while Sue Allanson, Mercia Grobbelaar, Anita Lombard and Julanda Theron handled the registration and information desk.

It is a daunting task to organise a SIL congress, but equipped with a two page “Manual for Organizing a SIL Congress” written by the late Bob Wetzels, fools rush in where angels fear to tread!. Some 900 regular mail letters were sent to SIL members and a total of almost 5 000 emails were handled by me alone, which excludes those done by the other LOC members. It required quite a balancing act to marry the venues with the number of delegates, especially since the numbers increased significantly just prior to the deadline for registration and the week following the deadline. We deviated slightly from previous SIL congresses in that the midweek excursion was only a half day and the congress was five, instead of six days.

Some statistics and information on the 31st congress are:

- 263 delegates
- 76 students
- 43 accompanying persons
- 43 countries represented
- 6 plenary, the Baldi and Kilham lectures
- 223 oral presentations
- 76 poster presentations
- 5 parallel sessions (for the oral presentations) and 3 poster sessions
- 3 workshops and 1 SIL working group
- The South African Department of Water and Environmental Affairs was our main sponsor
- The venue was the Cape Town International Convention Centre

Pre- and post congress tours were offered and delegates could choose from six mid-congress excursions (the latter included limnological and scientific information). The registration fee covered all costs at the venue, i.e. the welcoming function, teas/coffee, lunches, mid-week excursions, dinner, individually made congress bags, programme, CD with abstracts and a congress T-shirt. We also managed to support each student delegate with US\$ 200 to cover the actual costs. Seven prizes were awarded to students at the closing ceremony, following the adjudication by Judit Padisak and her team.

Scientifically and socially the congress delivered. There was ample time to meet and discuss issues. The new SIL journal (*Inland Waters*), declining numbers of SIL members and the problems facing the inland waters of South Africa and many other areas of the world were discussed in depth. Climate change, great lakes, informatics, lipids and the impact of water level fluctuations, were only some of the session topics.

The many encouraging emails and praise, are ample reward for organising the congress and we as the 31st Congress LOC, wish the organisers of the 32nd Congress all the best and remember “Come the night, all will be alright”.

Johan Grobbelaar
Chairperson, Local Organising Committee



From Left to Right: “Susan and Clive Justice, City Councillor of Cape Town who sponsored the meet-and-greet function, together with Johan Grobbelaar, chairperson of the LOC, and Brian

South African contributions to the 31st Congress of the International Limnological Society: Cape Town, 15-20 August 2010

From a South African perspective, there can be little doubt about the success of the SIL 31st conference, banner-heralded as a “First for Africa and South Africa” (to highlight the gremlin that managed to sneak in to suggest its location in a previously unknown country rather than in South Africa). But it was indisputably of true South African character, with Cape Minstral performers providing an insight into one of the country’s Cape Townian traditions during the opening ceremony. Its successes were both scientific and administrative, with the very small LOC deserving of particular acclaim in overcoming a last-minute withdrawal of the professional conference organizers that had been expected to deal with congress administration.

Although the total number of participants was relatively small compared to meetings held in developed nations, registrants (including accompanying persons) totaled a respectable number of 373 individuals from 43 nations. Of this number, roughly 13% of registered participants derived from South Africa, but disappointingly, other African nations were very poorly represented – with single registrants from only three other African countries – Lesotho, Malawi and Nigeria. Host nation participant contributions amounted to roughly 10% of the collective total (299) of plenary, oral and poster presentations listed on the conference “Abstracts” CD.

A highlight for South Africa at the First General Assembly at the start of the conference was the richly deserved award of the Naumann-Thienemann Medal to Professor Brian Allanson, indisputably the founder of limnology in South Africa, and mentor to many subsequent professional practitioners of the discipline. Congratulations to Brian, the first ever recipient of this award from any African nation!

Four of the six plenary lectures were given by South African participants. These lectures highlighted particular aquatic resource problems and deficiencies facing the discipline of limnology in South Africa, and provided a backdrop for many of the other South African oral and poster presentations. Reservoirs rather than rivers were a major focus of presentations – reflecting the growing problem of and concern with potable water quality. A similar profile was evident among other oral and poster presentations, a strong majority of which (some 70%) addressed topics in the context of reservoir limnology. Given the strong emphasis on river limnology and the virtual absence of reservoir research in South Africa over the past two decades, as outlined in my plenary address on ‘*plankton, fish and man*’, this profile was surprising, but also enlightening – suggesting a resurgence of concern with standing waters. Wetlands were centrally featured in only three presentations, with roughly equivalent numbers that could be labeled as ‘estuarine’ or coastal ‘marine’.

In line with Bill Harding’s plenary addressing inter alia the severity of ‘*reservoir pollution/ eutrophication*’, applied limnology was central among South African presentations, with water quality

serving as a recurrent direct or indirect theme in 2 of every 3 presentations. Pollution, bio-indicators, and the ‘health’ of aquatic systems or particular biota were central topics in regard to water quality. In terms of water quantity, the impact of reduced river inflows on the ‘*structure and functioning of the St Lucia estuarine ecosystem*’ was neatly addressed in Renzo Perissinotto’s plenary, while in his closing plenary address, Pete Ashton elegantly elaborated on the severity of the ‘*Water crisis*’ facing the new democracy of South Africa, and southern Africa in general.

In contrast to this strongly ‘applied’ bias, rather few South African presentations addressed fundamental issues; presentations on fatty acids as dietary components, and the alpha taxonomy of stream invertebrates provided the most obvious examples of more fundamental investigations, but also carried applied slants (e.g. bio-indicator taxa and climate change).

The weather was kind to delegates during the conference; ironically, it decided to sour marginally on the afternoon of the mid-congress excursions to various outdoor localities, rather than during indoor sessions of the meeting itself. The Cape Town International Conference Centre (CTICC) proved a convenient and adequate venue, the proximity of the famous Victoria and Albert waterfront allowing delegates various ‘extra-mural’ gastronomic and other opportunities.

Long in its gestation, SIL 31, the ‘First for Africa and South Africa’ produced a healthy bouncing baby, which must surely go some way in serving to revitalize limnology – that multifaceted scientific endeavour that the late Bill Williams viewed in his forthright manner as being the most crucial and nurture-needing discipline for a water-scarce country like South Africa. Robert Wetzel, long-standing past Secretary-Treasurer of SIL was unfortunately also not alive to participate in a conference whose location he had endorsed and supported unequivocally since it was initially proposed for South Africa, almost a decade ago. These individuals would surely have been pleased with the outcome. And all South Africans that I communicated with during and after the meeting have been complimentary – with nay-sayers conspicuous in their absence.

Rob Hart



SIL President, Professor Brian Moss (right), delivering the Naumann-Thienemann medallion citation for Professor Brian Allanson (left).

A Report on SIL Meeting in Cape Town from Brian Allanson: one of the three awardees of Einar Nauman - August Thienemann Medal

Good day Paul and Mike.

Firstly, thank you for your various informative mail messages you send us from time to time. Secondly, I thought you might like to hear something of the Congress held in Cape Town. I believe, as did the delegates, that it was a most successful meeting of limnological minds at an international level, and I do hope that members of SASAQs were able to attend. Unfortunately the name tags only gave the country and not the affiliation of the delegates so that we had little opportunity to seek out specific groups. I understand that the limited nature of the tag information is so that advertising hacks can't get hold of further details, e.g. emails, etc.

There were close to 400 delegates and 5 parallel sessions. Each was well attended and the closeness of the lecture rooms meant that there was no need to rush from venue to venue when you needed to get to another talk etc. The published program dealt effectively with the distribution of lectures and I received very positive comment for arranging the majority of plenary speakers from SA. Congress felt that they had been given a fair assessment of the limnological scene in the subcontinent. This was most brilliantly summed up by Peter Ashton who showed the social face of our responsibilities as water scientists.

I feel I must tell you that I was awarded the Einar Nauman - August Thienemann Medal at the first General Assembly, and while I could not hear all of the peroration given by the President, Brian Moss, I know that I felt distinctly humbled by the very obvious feature of the award and that it was, in my view, an acknowledgement by the international community that Limnology in South Africa is seriously undertaken and exists with a sound and exciting body of knowledge and understanding. I was its representative. I hope that my response following the award placed the emphasis where it belonged.

The President did, however, express concern over the falling membership of SIL. It would seem that individual countries have developed successful aquatic science societies, but these are not generating an increase in SIL membership. But apart from the costs of membership I would welcome any other views you or the committee of SASAQs may have in this regard.

The next triennial meeting will be held in Budapest, Hungary and hopefully South Africans will present papers along the themes of the Budapest meeting. This brings me to the point that the old format of publication of the SIL proceedings has been abandoned in favour of a newer reviewed journal – *Inland Waters* – Jack Jones of Missouri, USA is the Editor in Chief. (See page 9 of this newsletter.)

It would be remiss of me to end this note without saying thank you for ASAQS support and for the outstanding work Johan Grobbelaar and his team did in bringing all the bits and pieces together – SIL noted that the LOC was the smallest ever!

Brian Allanson

Post Congress Tour to Kruger National Park

Immediately following the successful SIL Congress in Cape Town on 21 August 2010, an international group of 14 adventurers made their way to Johannesburg for a trek to Kruger National Park. Drs. Chris and Carin van Ginkel did a fantastic job organizing and detailing seven informative and fun-filled days.

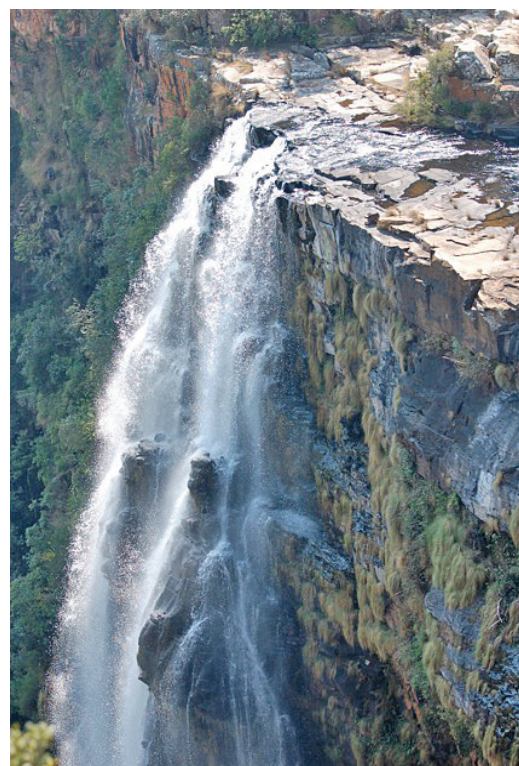
On route to the park, we stopped at a number of watery points of interest. At the Lisbon waterfall, my daughter and I noted that tadpoles in this bedrock river were most abundant in the side pools and troughs farthest from the main channel. Here the still water was warmer (21 vs. 14°C) and higher in dissolved solids (specific conductance : 100 vs. 50 $\mu\text{S cm}^{-1}$) than the main channel suggesting a greater algal food supply, along with avoiding a 90-m plunge over the rocks. Later, a night-time game drive in the Rietvlei Dam Nature Reserve

provided an opportunity to “feel-out” streams in the dark since the moisture-saturated air hanging just above these depressions immediately chilled your skin as you moved through it in open trucks with the air temperature at 5°C. A braai afterwards was a welcomed warming experience.

Our two days in the park were blessed by overcast skies and light showers - perfect winter weather to bring out wildlife for viewing! In a half-day workshop, park staff informed us about their extensive water



The 14 Adventurers.



Lisbon Waterfall.



Buffalos at night in the Rietvlei Nature Reserve.



Hippos in Kruger National Park

quality bioassessment program, impacts from upstream agricultural activities, and the death of hundreds of crocodiles over the past few years along several kilometres of river after the water level in the dam just inside Mozambique was raised a few metres. We then accompanied the park-staff to sample the benthos at one stream site while under the watchful eyes of two sharp-shooters keeping us safe from hippos under the water, crocs in the water, lions near the water and leopards over the water. Mayflies, caddis, beetles and chironomids were abundant.

Leaving the Kruger Park, we toured the historic gold-mining area of Barberton and dropped into a century-old gold mine carved into some of the world's oldest rock. While others later panned for gold with solid-bottomed sieves, a few of us panned for mayflies and other benthos in a clear-water, rocky stream and were not disappointed.

We owe a debt of gratitude to our tireless hosts for the new friendships that were forged along the trail and the memories that will endure a lifetime.

Dr. Ronald Griffiths

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Obituaries

In Memory of Distinguished Professor Clifford H. Mortimer, a Gentleman and a Scholar 27. February 1911- 11 May 2010



*Clifford H. Mortimer, 27 February
1911- 11 May 2010*

Clifford H. Mortimer graduated from Manchester University with a degree in Zoology in 1932. He began his career studying cladocern genetics in Berlin that year and completed his Dr. Phil. Degree at Berlin in 1935. He returned to Britain that year to the Lake Windermere Laboratory of the Freshwater Biological Association to conduct chemical analysis of lake water. These studies drew his attention to the sediment-water interface

and the importance of oxidation-reduction potential gradients that influence seasonal processes in lakes. Two papers published in 1940 and 41 have become classics.

During World War II, Mortimer served as a civilian scientist in the British Admiralty Research Laboratory. He worked with a group measuring waves in the English Channel and forecasting wave conditions in support of military operations. His experience there with a cadre of oceanographers and hydrodynamicists gave him a

taste for interpreting the periodic motions of the sea, which became his lifelong passion and the focus of his scientific research.

After World War II, Mortimer pioneered the investigation of internal waves in lakes. He became interested in the dynamics of Lake Michigan during visits to the U.S. in the 1950's and 60's. He discovered that temperature records at domestic water intakes in Lake Michigan enabled him to deduce internal motions in the lake. Nearly 30 papers were published on lake motions in English lakes and Lake Michigan.

The 1950's and 60's saw major changes in Professor Mortimer's career. In 1956 he assumed the directorship of the Scottish Marine Biological Laboratory in Millport. In 1966 he was offered a Distinguished Professorship of Zoology at the University of Wisconsin-Milwaukee and the Directorship of a newly formed Center for Great Lakes Studies.

The 1970's were busy with administrative duties and service to professional associations. He was elected President of the American Society of



*Clifford Mortimer in 1974 at the Center
for Great Lakes Studies at the University
of Wisconsin.*

Limnology and Oceanography in 1970 and served as President of the International Association for Great Lakes Research in 1973. There was also a flurry of research activity with graduate students and post doctoral fellows collecting data on cruises and analysis of physical processes in Lakes Ontario and Michigan. There were 8 papers published during the decade. Professor Mortimer's classic paper, Lake Hydrodynamics, was published in 1974 (Mitt. Internat. Verein. Limnol. 20:124-197).

In 1985 he was awarded an Honorary Degree of Doctor of Science by the University of Wisconsin-Milwaukee and in 1987 he was granted an Honorary Docteur Degree at Ecole Polytechnique Federale de Lausanne. In 1981 he retired and was granted Distinguished Professor Emeritus status. Concurrently, he was awarded "Life Membership" by the American Society of Limnology and Oceanography. Work continued with European and British colleagues on the internal motions and biology of Swiss lakes (four publications), and a paper examining water motions in Green Bay, Lake Michigan using numerical models.

A book titled, Lake Michigan in Motion: Responses of an Inland Sea to Weather, Earth-Spin, and Human Activities, was published by the University of Wisconsin Press in 2004, 28 years after Professor Mortimer's retirement. The book chronicles three centuries of observations of the Great Lakes by native peoples, early explorers and contemporary scientists. The physical geography and geology of the basin is covered along with chapters on sediment and water chemistry, ecology, human influences, and the internal motions of waves and currents.

In 2006 at age 95 his final publication appeared in Limnology and Oceanography (51:1914-1955) titled, Inertial oscillations and related internal beat pulsations and surges in Lakes Michigan and Ontario. At age 99-plus he had completed the penultimate draft of a paper examining variables influencing the density of freshwater. This paper will be submitted posthumously as Professor Mortimer died peacefully on May 11, 2010.

Arthur Brooks and David Schwab
abrooks@uwm.edu

OBITUARY: Doc. RNDr. Jaroslav Hrbáček Dr.Sc. (July, 16, 2010).

This summer Czech limnology lost its most prominent personality: Doc. RNDr. Jaroslav Hrbáček Dr.Sc. (89). He was a member of the British Royal Entomological Society; an honorary member of the Ecological Society of America; honorary member of the International Society for Limnology (SIL) and holder of the SIL's Thienemann's medal "for merits in limnology"; a member and former president of the Czechoslovak Limnological Society; member of the Czechoslovak Zoological Society; Scientific secretary, Czechoslovak participant in the "International Biological Program"; scientific secretary of the Czechoslovak Committee for the Project "Man and Biosphere". He passed away after a short illness.

Born 12 May, 1921 in the Moravian town Brno, Jaroslav had to postpone university studies from 1939 to 1945 because of the 2nd World War. During the war he was employed in various unskilled positions, and eventually as a worker in a pharmaceutical laboratory.

During those years of limited opportunities, he intensively followed his interest in entomology and collected aquatic beetles of the families Dytiscidae and Hydrophilidae and of the genus *Hydraena*. He published several articles dealing with the behavioral strategies (breathing ecology and physiology) of aquatic beetles and their taxonomy. Based on those publications, he was accepted into the Brit. R. Entomol. Soc. (Hrbáček, 1950)

In 1945, he decided not to follow his pre-war interest in medical studies and selected instead to study biology at the Faculty of Science, Charles University. He defended his doctoral thesis as soon as 1948 and was accepted as an assistant professor of hydrobiology in the same faculty. In search of an interesting topic for his future research, he considered repeating, after more than half a century, an introductory study by Prof. A. Frič and his colleagues of the hydrobiology of Czech lakes, fish ponds and backwaters. The easily accessible backwaters of the river Labe, northeast of Prague, became the object of his detailed, long-term research and field experiments. He was able to raise the interest of his enthusiastic colleagues and students in the problem of declining fish catches and the high productivity of the backwaters. He showed that these backwaters in the study area were overstocked with fishes and not deprived of them as most fishermen believed. Between 1949 and 1959 he formulated the hypothesis of the impact of fish predation on the species composition and abundance of zooplankton, based on whole ecosystem manipulation: the removal of fish and evaluation of the resulting changes within the system of backwaters and a comparative study of fish ponds in which the numbers of fish were known due to the fish management practice. The results are part of the fundamentals of the theory, formulated later as top-down regulation of freshwater ecosystems (Hrbáček et al. 1961; Hrbáček, 1962). With his team, Hrbáček revitalized the activities of the faculty's hydrobiology department, as well as of its two field facilities: one a simple cabin in the River Labe region (borrowed from an interested local owner) and the faculty field station near Blatná town (SW Bohemia). What is amazing, from the perspective of recent times, are the primitive equipment and relatively low cost, and thus the high efficiency of all those research activities, paid partly by Hrbáček from his own pocket.

In the late 1950s, the faculty milieu was not too favorable for such long-term and broad-minded research programs and thus Hrbáček



Dr. Hrbáček standing near the Poltruba Pool (in the background), the experimental waterbody where Hrbáček carried out his pioneering work on "the effect of fish stock on the zooplankton species composition".

took up the opportunity offered to manage a newly organized Hydrobiology Laboratory within the former Czechoslovak Academy of Sciences. Again, his team built up a completely new lab facility in Prague and a large field station on Slapy Reservoir (a new water body filled up in 1955). His team aimed at long-term studies of changes in a series of newly-built artificial reservoirs on Czech rivers and creeks (Slapy, Orlík and Klíčava reservoirs) (Hrbáček 1984). For the next two decades, Dr. Hrbáček also continued his former interest in zooplankton in a series of experiments with the genus *Daphnia*, a dominant grazer within the zooplankton and, together with his wife Marta, published experimental data on the rate of zooplankton development in relation to temperature and food availability. He also stressed the need to study modern taxonomy of the genus and differences in ecology among individual species. For instance, he contrasted the requirements and life strategies of two local species: *Daphnia pulex* and *Daphnia pulicaria* s. lat. (Hrbáčková & Hrbáček, 1978, 1979). His other field of interest was the input of nutrients (N and P) from agriculture to the reservoirs and their long-term changes and effects.

His influence on the trends in Czech, and partly Slovak, hydrobiology was crucial. Both in the Academy and in the Faculty of Science, Hrbáček's hydrobiology groups became established and his students took part in the formulation of details, enlargement or application of his hypotheses in related fields of interest, and in water management institutions. What was probably even more important for local scientific activities was that he introduced and taught modern methods in limnology, the most recent ecological ideas. Last but not least, he considered the necessity of hard and tedious long-term field research combined with lab and in situ experiments as the only way to successfully present our results on the international "science market", in contrast to research based on the use of sophisticated equipment, which was not available in those times in Czechoslovakia. He published about 150 scientific papers and popular articles for interested amateurs; one among his well known papers (Hrbáček et al. 1961) has been cited more than 500 times including in many handbooks in limnology.

In the late 1970s, political authorities decided to move part of the Czechoslovak Academy's biology oriented institutes from Prague to České Budějovice, a regional center in South Bohemia.. For the third time, his team had to build up new lab facilities and a new field station, on the nearby Římov reservoir. Dr. Hrbáček did not accept the new, politically selected, management of the institute and had



From Left to Right: J. Lellak, J. Hrbáček, V. Straškrabová, and J. Vrba in background

to retire. Nevertheless, he co-operated with his former colleagues in several projects and after 1990 was employed as an external expert. In that new situation, J. Hrbáček was interested mainly in general questions of reservoir limnology and published results from long-term sets of data on the prevalence of dominant plankton groups like cladocerans and copepods (Brandl et al. 1989; Hrbáček et al. 2003). He was very active until his final days: his last manuscript was delivered for publication only several months before his death (Hrbáček & Albertová, in press).

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Pavel Blažka

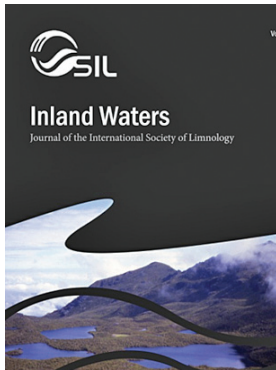
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Announcements and Reports

Launching of *Inland Waters* – Journal of the International Society of Limnology (SIL)



After 30 volumes containing some 7800 papers on virtually every topic in limnology the *Verhandlungen* has been replaced by the peer-reviewed journal, *Inland Waters*. It will advance science within the framework of SIL by publishing submissions that parallel the content of Congresses. Submissions on all aspects of physical, chemical and biological limnology across organizational levels from autecology to ecosystem studies are appropriate, as are papers on applied and

regional limnology. The journal was launched at the Congress in Cape Town, with the first papers posted online by January 2011. It will be published and maintained by the Freshwater Biological Association.

Inland Waters is an electronic journal, publishing papers online as they are accepted and then in 4 hardcopy issues per year. Electronic access is provided to all SIL members and subscribers, and print issues are available for an extra charge. Publication is not restricted to SIL members.

The publication will consist of standard manuscripts of about 5000 words (with appropriate tables and figures) and focal articles entitled 'Research Briefs' (<2500 words, with limited tables and figures). Review and publication of these short articles are fast-tracked and they enjoy open access to accelerate communication of emerging issues, novel findings and advance scholarly exchange. Standard manuscripts can be given open access for an additional fee and those exceeding 8 pages will be subject to page charges. We will continue to publish articles from plenary lectures and issues dedicated to a particular

theme, specific water body, or aquatic ecosystems in a geographic area. All submissions will be subject to peer review to determine the importance, originality, soundness and interpretation of the contribution. *Inland Waters* aims to provide a particular opportunity for students, early-career scientists and

those from developing or non-English speaking countries to publish research. The Editorial Board represents the strengths and breadth of disciplinary expertise within SIL.

For further information, visit the SIL website: www.limnology.org

Specific enquiries from authors should be directed to the Editor: jonesj@missouri.edu

Manuscript submission is online via the FBA's electronic submission and tracking system (available August 2010): www.fba.org.uk/journals

SIL Working Group of Winter Limnology: Announcement of 3rd Symposium (12-15 April 2012) at the Finse Alpine Research Center, in the central South Norway

In textbooks of limnology, winter is generally considered as an invariable and unimportant season. However, such a perception is unwarranted. Winter is an essential part of the seasonal cycle of water bodies because it affects the functioning of the ecosystem in various time scales, often extending to summer. Consequently, very little attention has been paid to limnological research in winter. Recently there are indications of clear research stimuli in winter limnology, to a great extent due to the concern about climate warming - probably the most serious environmental challenge to mankind ever. In lakes, climate warming seems to affect predominantly winter conditions. This poses a challenge to one of the most neglected topic of limnology. At the same time, the development of technology is fortunately overcoming many of the practical problems that earlier hampered research under harsh winter conditions. Hence, the possibilities to acquire unprecedented short and long term data as well as short and long distance spatial resolution even under the ice have dramatically increased.

The above background information led to the organization of two Winter Limnology Symposia (<http://www.jyu.fi/bio/hyb/Winter/>; <http://2ndwinterlimnology.igb-berlin.de/>) and finally to the formal



Finse Alpine Research Center in winter

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recognition of the WG Winter Limnology as a SIL group. Here, winter is considered rather broadly and it includes high latitude as well as temperate lakes with a regular or an irregular seasonal ice cover. The aims of the Working Group are to bring together experts in various disciplines to stimulate thinking over a wide perspective, including regional and global ones and to enhance collaborative ecosystem investigations of lakes in winter. The main tools of the activity are the biennial symposia in winter limnology, and communication through the Internet pages (<http://www.jyu.fi/bio/hyb/WGL/>).

The first Symposium of Winter Limnology was organized at Kilpisjärvi, Finland in 2008 and its proceedings were published in *Aquatic Ecology* in 2009 (<http://www.springerlink.com/content/1386-2588/43/3/>). The second symposium was held in 2010 at Liebenberg near Berlin, Germany and the following Winter Limnology Symposium will be organised at Finse Alpine Research Center, located in central South Norway, Thursday 12th – Sunday 15th April, 2012. Although there are no public roads to the Center, the Oslo-Bergen railroad is usually open through the winter and the train stops at the Finse railway station (1222 m.a.s.l.) at very convenient skiing distance (1.4 km - alternative transport may be arranged). More information about the Research Center and the 3rd Winter Limnology Symposium is posted at <http://www.finse.uio.no/events/>. The information will be periodically updated and completed by September 2011 for all those who want to sign up to attend the symposium.

For more information, please contact Pauliina.salmi@helsinki.fi for the SIL Working Group of Winter Limnology, and dag.klaveness@bio.uio.no for the 3rd Winter Limnology Symposium

Dag Klaveness and Kalevi Salonen

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SIL Working Group on the Conservation and Management of Running Waters

The Working Group first met at the SIL Congress in Munich in August 1989. I formed the group together with Bob Petersen (University of Lund, Sweden) and we ran it together until Bob's untimely death in 1995. We have held group meetings at all of the SIL Congresses, mixing business matters with scientific discussion and publishing the results of some of our deliberations in the SIL Proceedings. These ranged from river restoration (1998, 2006) to competition for water (2002) and integrating science and policy in river conservation (2000). We have also published, at decreasing frequency, a newsletter – *Meanders* – for group members.

I was unable to attend the recent Congress in Cape Town, but I asked two of our members, Eliot Taylor (UK) and Gisli Gislason (Iceland) to arrange a meeting of the Working Group, mainly to discuss where the group should go in future. I had made many attempts in the period leading up to the Cape Town Congress to elicit views both on our future activities and on specific topics for discussion at the meeting, but these efforts met with little response.

The report back from Eliot and Gisli is brief and to the point.

Only four others, apart from the two chairmen, attended the meeting. That in itself strongly suggests that it is time to wind up the group, at least in its present form. I suspect there are many reasons for the group's gradual decline – an overworked membership with too little time and too much to do; too much to read and too much to write; the pressure to publish work in peer-reviewed journals; and the availability of many other outlets for writing formal and informal articles on conservation and management.

The few responses that I have received, both directly and indirectly, are divided on whether the group should continue, but the support needed from individual members to keep it running is clearly not there any more.

Eliot Taylor has proposed that the Working Group might be replaced by some form of email or web-based discussion group (rather like the Ramsar Forum). This might need to have a rather narrower focus than 'river conservation and management', as the subject area has expanded greatly since the Working Group was established. As Chair of the group I am happy to endorse that proposal and to see whether it might provide a viable alternative to the present arrangements.

A copy of this report will also appear in SIL News. Eliot will be in touch with those to whom this is sent, but others interested in joining the new discussion group should contact Eliot direct:

Eliot Taylor
ATKINS
Private Bag 255
Plot 3 / 443
Lilongwe
Malawi
Email: eliot.taylor@atkinsglobal.com

After 21 years it is hard to relinquish my formal role with SIL but I feel the time is right. I wish the new venture well and look forward to keeping in touch with many of you in future.

Professor Philip J Boon

Scottish Natural Heritage
Edinburgh, UK

SIL Working Group Macrophytes : A Report

During the last two years we have succeeded in organising special macrophyte sessions during ASLO meeting in Nice (France) in January 2009 (oral and poster sessions) with a good attendance.

A joint meeting between EWRS and SIL on Aquatic Macrophytes was organised by Dr Seppo Hellsten (co-Secretary of our WG) in Jyväskylä (Finland) in August 2009 (with other SIL members belonging to the Scientific Committee – a special issue of *Hydrobiologia* is in press including 24 manuscripts).

We had no special session on macrophytes in Cape Town 31st SIL congress, but some oral presentations and posters concerned macrophytes. We succeeded in having a WG meeting with many exchanges. Two motions were discussed:

- we disagreed with merging with Wetlands WG because we need to keep a well identified WG on Macrophytes, but we shall build a closer collaboration with this WG as much as possible, as we agreed with a later contact with Prof Brij Gopal

- we are planning to organise a next joint meeting EWRS-SIL in the Natural Science University of Poznan (Poland) between 27th and 31st of August 2012.

We also presented the website and invited the interested scientists to register at the following address:
<http://www.silmacrophytes.au.poznan.pl/>

Lastly, we decided to exchange publication lists.

Prof Dr Jacques Haury Chairman (jacques.haury@agrocampus-ouest.fr) & **Dr Krzysztof Szoszkiewicz Secretary**

SIL WG Plankton Ecology Group (PEG): A Meeting Report

At the 31st triennial SIL Congress in Cape Town (South Africa) in August 2010 the working group PEG got together. I presented a short overview of the Plankton Ecology Meeting held in Amsterdam from 7 to 9 April 2010 on "Predictability of Plankton Communities in an Unpredictable World" (see SILnews 56, pages 26-27). The working group discussed the importance of having in-between meetings, which could preferably be held outside Europe to promote exchange of information among plankton ecologists from different geographical regions. The next meeting is planned to be held at the end of 2011 or the beginning of 2012 and will be organized by professor S.S.S. Sarma (National Autonomous University of Mexico, Campus Iztacala, Mexico-City; more information will follow). The working group realized that with an ongoing increase in plankton ecology research, the PEG might provide a platform where information could be put together. For this purpose, the PEG plans to launch a PEG-newsletter. All plankton ecologists are cordially invited to contribute information on plankton conferences and plankton sessions at congresses to plankton@nioo.knaw.nl.

Last but not least, I must mention for our younger colleagues and students that the PEG is among the oldest working groups of the SIL. Since its inception in 1974 at the triennial SIL Conference in Winnipeg, Canada, PEG has arranged more than 20 meetings, which included both symposia and workshops, leading to the initiation of cooperative studies and joint publications. One of the most cited papers in plankton ecology, i.e. on the PEG-model (Sommer et al. 1986), was the result of some of these meetings. The working group recognized that the PEG originally focused on elaboration of data and that the perspective on plankton ecology has undergone a lot of changes. In the modern day field of plankton ecology an important role for the WG PEG is to stimulate the exchange of ideas and information, and to encourage an integrated approach to the science of plankton ecology.

Miquel Lüring
WG Chairman
plankton@nioo.knaw.nl

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The 6th International Meeting on Plant Litter Processing in Freshwaters

The Department of Freshwater Biology of the Institute of Nature Conservation, Polish Academy of Sciences, announces the Sixth International Meeting on Plant Litter Processing in Freshwaters (PLPF6) to be held in Cracow (Krakow) in Poland (European Union), 26-30 July 2011.

The sixth PLPF meeting will bring together life science researchers, conservation biologists and managers, students and all enthusiasts from around the globe to exchange ideas and discuss methodologies on litter breakdown in freshwaters of different landscape-scale and aquatic habitats. This international conference is also dedicated to basic and applied research on plant litter decomposition in all types of freshwater environments.

In addition to plenary (provided by invited speakers), oral and poster sessions, meeting participants will take part in a one day trip to the Dunajec River and the Czorsztyn dam to discuss the role of river engineering in the restoration and management of mountain riverine ecosystems and view native habitats.

More information can be found at the following website:
<http://www.iop.krakow.pl/PLPF6>

On behalf of the PLPF6 Organizing Committee

Tadeusz Fleituch (President)
Fleituch@iop.krakow.pl
PLPF6@iop.krakow.pl (secretariat)

Global Limnology in the Encyclopedia of Life Support Systems

The Encyclopedia of Life Support Systems (EOLSS) (www.eolss.net) is the world's largest publication developed under the auspices of the UNESCO as an archival source of reference in a great variety of subjects relevant to sustainable life on this planet. The EOLSS is based on the concept and the definition of 'life support systems' enshrined in Agenda 21, issued by the Earth Summit of 1992, which considered the whole of our planet as a grand intensive care unit, which supports all forms of life (both natural and human engineered systems). The EOLSS is organised around more than 200 themes covering a wide range of major core subjects in a process of gradual development, from broad overview to great detail. EOLSS-online is made available free of charge to universities in the UN list of least developed countries. Volumes covering three core areas, Water Sciences, Energy Sciences and Environmental and Ecological Sciences would be of special interest to the members of SIL.

I have been invited by the UNESCO-EOLSS Committee to serve as the Honorary Theme Editor of the volume on Limnology of Rivers and Lakes in Asia. The volume will also cover the wetlands except the peat bogs. I have also been asked to coordinate with authors of chapters on other continents in order to ensure some level of uniform treatment of the subject. I propose to follow, as far as possible, a river basin approach instead of a country-wise account of limnological studies. Not only most of the rivers (and many lakes and reservoirs)

in Asia are transboundary in character, they are also linked en route with the lakes/reservoirs.

All those who are working or have worked on Asian rivers, or lakes, or both, and are willing to contribute to the volume are requested to contact me (brij44@gmail.com) for details. Suggestions for suitable contributors are also most welcome. Those interested in the rivers and lakes of other continents may contact UNESCO-EOLSS Committee (Dr Vladislav Kotchetkov; v.kotchetkov@unesco.org).

Brij Gopal

Coordinator

Centre for Inland Waters in South Asia

National Institute of Ecology, Jaipur

email: brij44@gmail.com

7th International Shallow Lake Conference (April 24 – 28, 2011; Wuxi, China)

Theme: Conservation, management and restoration of shallow lake ecosystems facing multiple stressors

Shallow lakes dominate the world's freshwater surface area, as well in their number. They provide important services to human beings, which include drinking water supply, fisheries, vegetation-based resources, recreational and socioeconomic and aesthetic values. Shallow lake ecosystems are facing multiple stressors, such as eutrophication, invasive species, droughts and overfishing or aquaculture and climate warming. Some of the stressors may act synergistically to magnify the problems they cause and accelerating the degradation of shallow lake ecosystems. The 7th International Shallow Lake Conference will focus on understanding the response of shallow lake ecosystems to multiple stressors, and steps that can be taken to help conserve, manage and restore these valuable systems.

The main topics are:

1. Effects of nutrient enrichment, organic pollutants, heavy metals on the structure and function of shallow lakes
2. The functional role of sediments and benthic organisms and sediment/water interactions in shallow lakes
3. Shallow lake characteristics and how they differ in response to the stressors?
4. Roles of invasive species in shallow lakes and wetlands
5. Droughts and salinization in shallow lakes
6. Ephemeral shallow lakes and the physiology of survival
7. Small ponds and large shallow lakes: is there a difference or a continuum in ecology?
8. Shallow lakes and wetlands: carbon storage and emissions, and climate change
9. Ecosystem services, restoration and rehabilitation of shallow lakes and wetlands
10. New molecular and biogeochemical techniques (e.g. stable isotope) applied to shallow lake studies

Organized by

- Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences
- Government of Wuxi, Jiangsu Province

In collaboration with

- Jinan University
- Nanjing University
- Institute of Hydrobiology (Wuhan), Chinese Academy of Sciences

Sponsored by

- Chinese Academy of Sciences
- National Natural Science Foundation of China
- State Key Laboratory of Lake Science and Environment

Important dates

- Pre-registration: 30 November, 2010
- Hotel registration: 31 December, 2010
- Abstract submission: 28 February, 2011
- Conference: 24 - 28 April, 2011
- Manuscript submission (for the special issue in *Hydrobiologia*): 30 June, 2011

Conference venue and hotels

The conference will be held at Wuxi in Xizhou Garden Hotel (four stars). The cost of rooms (including breakfast) is about US \$80 per night. Website of the hotel: <http://www.xizhougardenhotel.cn/en/aboutus.asp>. Cheaper hotels are also available, within walking distances from the conference venue and the costs range from US \$25 to 50 per room per night.

Registration fee

Registration fee is US \$450 (US \$200 for each accompanying person and student) which covers lunches and dinners from April 24 to 28, a welcome banquet and the excursion on April 26.

Transportations

- *By Airs:* Wuxi (Shuofang) Airport has flights from the major cities in China including Hong Kong, Beijing and Guangzhou. Also there is an international flight from Osaka (Japan) to Wuxi.
- *Railways:* Express trains to Wuxi regularly run from Beijing, Shanghai and Nanjing.

Website

- <http://www.shallowlake2011.com>

Contact person

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Trends In Mexican Limnology

Trends in Mexican Limnology: Door to the past

Early this year, we (Alcocer & Bernal-Brooks, 2010) published a review paper “Limnology in México” in *Hydrobiologia*. The paper considered three major periods for the development of Limnology in Mexico: the prehispanic achievements by native cultures; an intermediate stage with foreign intervention during the late 19th and the early 20th centuries; and a modern time from the establishment of the Estación Limnológica de Pátzcuaro in 1938, including research done until 1943, to a take-off of national contributions from the mid-1970s to date.

Just before the arrival of Spaniards in America in 1519, several human settlements were already established in the Mexican territory. Surprisingly for the Europeans, they found in the Mexico basin, a marvelous city built-up by the Aztecs inside a lake (Tenochtitlán, now México City). This is a unique case of a population in close contact with the water; also in the area of Michoacán, the Purépecha used to dwell in the shoreline of Lake Pátzcuaro; and the Maya in Yucatán, in the area of a karstic peninsula filled-up with cenotes (sinkholes).

The limnological knowledge attained in particular by the Aztecs in the six interconnected lacustrine basins of Mexico, transcended to the present day by means of codices. Unfortunately, most of these ancient documents disappeared; although some remnants contain descriptions of the freshwater flora and fauna. Examples of ancient organisms in



Fig. 1. Prehispanic lacustrine products obtained by the inhabitants of Central Mexico. (a) “Tenextli” (calcium oxide), “iztal” (sodium chloride) and “tequiquitl” (sodium bicarbonate) were the main salts used by the ancient Mexicans. (b) The “tecuitlatl” (*Spirulina*). This cyanobacteria along with “amomoxitli” (*Nostoc*) and “cuculin” (*Phormidium*) were collected from Lake Texcoco and the other lakes of the Mexico basin. (c, d, e) Aquatic insects such as hemipterans or “axayacatl” (*Corisella*, *Notonecta*) as well as dipterans or “amoyotl” (*Ephydra*) were prepared and consumed as adults, pupae, larvae and eggs; the later known as “ahuautli” were considered a delicacy. (f) The “acuitzil” (*Cambarellus montezumae*) was greatly appreciated; this crustacean was consumed boiled or toasted. (g) The goodeid fish “mextlapique” (*Girardinichthys*) and particularly (h) the silverside “iztamichin” (*Chirostoma*) were considered an excellent food based on its white meat and delicate flavor. (i) The famous Mexican “axolotl” (*Ambystoma mexicanum*) was consumed in different dishes and the gills prepared as a tonic for respiratory illnesses. (Photographs taken from Fomento Cultural Banamex, A.C., 1987).

the prehispanic manuscripts are the tecuitlatl (*Spirulina*), the amoyotl (ephrydrid insects, Diptera) and the canauhtli (waterfowl). Moreover, a wise management of the aquatic environment involves such monumental engineering works like the “Albarradón de Netzahuacoyotl”, a series of dikes (16 km x 20 m) in Lake Tenochtitlán designed for water level control, aimed to prevent floods into the city as well as the mixture of saline waters from the Texcoco sub-basin with the other freshwater counterparts from the west and south.

By the end of the 20th century, the establishment of Limnological Stations abroad fostered the interest on the Mexican freshwater organisms and so, Mexico offered an unexplored field for the international efforts centered on the taxonomy of organisms.

In 1938, under the tenure of President Lázaro Cárdenas, the foundation of the Estación Limnológica de Pátzcuaro started with the scientific advice of Spanish professor Dr. Fernando de Buen, with the appearance of the most significant articles of the pioneering time until 1943 (Bernal-Brooks, 2008).

The American limnologist E.S. Deevey (1957) considered Lake Pátzcuaro as “the only lake studied comprehensively in Middle America (Mexico-Panamá)” and also as one of the “the best known in the whole continent (America). This particular lake has kept its reputation and is at the top of the list of cited publications but other lakes, e.g. L. Chapala, Alchichica may be considered now as the best-known in the country.

After some decades of dormancy, a new impulse to the discipline was given in the mid-1970s by the sporadic studies conducted by Mexican initiative. Long-term data collection for at least one-year, as it was considered before at the Estación Limnológica de Pátzcuaro, recommenced in 1978 a study on Lake Zirahuén. Later, in 1990-1991, the “Limnology Weeks” allowed



Fig. 2. Fishing at Lake Pátzcuaro. Lake Pátzcuaro (116.5 km²) lies within an endorheic basin (934 km²) of the East-West Volcanic Axis between 19°32'–19°42' N and 101°32'–101°42' W, and 2,035 m above sea level. Intense volcanic and tectonic activity during the Tertiary and Quaternary converted a tributary of the Lerma River into the closed basin of Lake Pátzcuaro. In this shallow lake (maximum depth = 10 m, mean depth = 4.1 m; volume 368.5 x 10⁶ m³) of eutrophic and turbid waters inhabit the famous and highly appreciated silversides (“pescado blanco” and “charales”, genus *Chirostoma* and now *Menidia* according to Miller et al., 2005) and a native carp (*Algansea lacustris*) among other fish. (Data from Alcocer & Bernal-Brooks, 2002).

an interaction of Mexican limnologists with international colleagues invited by the Mexican Federal Government. The Mexican Association of Limnology was established in 1997 and five national congresses have since then been held, including the one to be held in November 2010.

During the last two decades, a fast development in limnology that occurred included all kinds of aquatic inland environments, i.e. reservoirs, rivers, cenotes and volcanic lakes, than in the traditional lakes Chapala, Cuitzeo, Pátzcuaro and Zirahuén. Finally, the progress in the limnological knowledge show that Mexican lakes match neither the situations of temperate areas nor the neighboring tropical areas, but is rather a hybrid between the two, a similar condition that Cole (1968) found when he studied the lakes of the southwestern United States and suggested the name Desert Limnology.

Javiar Alcocer

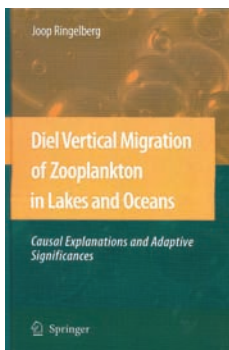
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- Javier Alcocer, Proyecto de Investigación en Limnología Tropical, FES Iztacala, Universidad Nacional Autónoma de México, Av. de los Barrios No. 1, Los Reyes Iztacala, Tlalnepantla, Estado de México 54090, Mexico. jalcoxcer@servidor.unam.mx
- Fernando W. Bernal-Brooks, Instituto de Investigaciones Sobre los Recursos Naturales, Universidad Michoacana de San Nicolás de Hidalgo, Av. San Juanito s/n. Col. Nueva Esperanza, Morelia, Michoacán 58830, Mexico.

New Books

Diel Vertical Migration of Zooplankton in Lakes and Oceans. causal explanations and adaptive significances. Ringelberg, Joop. 2010, XIV, 356 p. ISBN: 978-90-481-3092-4. Hardcover Springer Science+Business Media 2010. Price 129,95 €



On the cover page information, the author, Dr. Joop Ringelberg, provides some succinct facts about this book, which deals with Diel Vertical Migration (DVM) of zooplankton in oceans and lakes. Dr. Ringelberg claims that this book presents the first critical discussion of the literature relating to the subject matter in the 100 years of research. The accent throughout the book is on photo-response experiments, which in the author's own words revealed the physiological fundament uni-

fying migration behavior in both biotopes. The book presents an excellent summary, and more, of the pioneering published works of Dr. Ringelberg. He provides an excellent explanation of the coupling between diel migration, predation evasion and starvation prevention in migratory zooplankton. The stimuli that trigger the migratory behavior in zooplankton are shown to be governed by the relative rate of change in light intensity per unit time, includ-

ing both increase at dusk or decrease at dawn of the light intensity. Thus, migratory behavior in many planktonic organisms, such as *Daphnia spp.*, is interestingly evolved to realise predator evasion and starvation prevention.

A quick inspection of this 13-chapter book shows that it departs from the traditional style of chapter sequence, e.g. instead of describing first the ecological phenomenon related to diurnal vertical migration (DVM) in first few chapters before the physiological mechanisms that promote or trigger migration are explained. Also new for me in this book is that chapters end with rather detailed "Notes" (in smaller font), and some chapters end even with "Finally" or a "Summary" or an Appendix. Each chapter has its contents set out at the start and that adds to the ease of readability. The figures in the book that are generally of good quality; I think some of these could have been in colour but, to keep the price low, the publishers have preferred to have the figures in black and white. All in all, the book looks very original but I would have preferred a summary conclusions section in each chapter. The book reads generally quite well. The grammatical and other errors that I came across fortuitously are apparently a few but not frightening. The chapter bibliography is collated at the end and cumulatively covers some 25 pages.

Joop Ringelberg switches straight on to explaining the underlying physiology of stimulus perception and resulting behavior of the migratory zooplankton (Chapters 1-5), as obtained in laboratory experiments. These chapters, as in case of my book review, will get extra attention of book's readers. Chapter 1 is briefly written but provides the ecological context about how the attention in ecology has shifted from proximate mechanisms to ultimate aspects such

as adaptation, and its significance in the migratory behavior of zooplankton, i.e. prevention of zooplankton mortality by predation of visual predators. Zooplankters seem to be able to detect the presence of fish by the chemical substances associated with these fish. Chapter 2 “Swimming in a strange Biotope” draws attention to the pelagic biotope, which is considered as optically empty—an explanation for well-developed eyes of zooplankton. The pelagial of both lakes and oceans is considered to lack the microhabitat diversity of terrestrial biotopes. Dispersal in an unstructured, three dimension space is considered a general problem—just as mate finding and predator avoidance. Chapter 3 deals critically with the nature of stimulus. The question that Dr. Ringelberg poses is: is the change in absolute light intensity the stimulus or is the relative difference in light intensity a causal stimulus? That the relative change in light intensity, as it occurs at both dawn and dusk, is the essential stimulus that triggers the migration of zooplankton runs through this book as an important message. This also explains why dusk and dawn periods are crucial in initiating migration. In these diel periods, the lower visual thresholds range about 2.5 orders of magnitude, from 1.28×10^{-7} to $8.3 \times 10^{-5} \mu\text{mol m}^{-2} \text{s}^{-1}$, in dark acclimated zooplankton. However, to avoid being predated by fish, the planktonic zooplankton, e.g. *Daphnia* spp. and *Eudiaptomus gracilis*, have to have a lower visual threshold than that of the fish in order to descend, e.g. at dawn, before the predatory fish can visually feed on them.

Chapter 4 makes an interesting reading and is based on Dr. Ringelberg's and one of student's work in both field and laboratory. In this chapter it becomes clear that photo behaviour mechanism (PBM) is insufficient to describe large amplitudes of DVM. This was demonstrated in a simple laboratory experiment by Dodson (1988) and three years later confirmed by Dr. Ringelberg (1991) in a field study in the Netherlands where seasonal period of DVM in Lake Maarsseveen lasted as long as the large shoals of perch, *Perca fluviatilis*, were present in the lake. It became clear from the experiment in laboratory that juvenile perch mediated chemical substances, the so called info-chemicals or fish *kairomones*, are perceived by *Daphnia hyalina* who then extend their migratory amplitude to deeper water layers. In Chapter 5 models are used to study DVM. The modellers seem to divide the water column in lakes to two distinct parts, the upper epilimnion and the lower hypolimnion. Although quantitative data are scarce, these lake parts are distinguished on bases of three factors: food, predation and temperature that are important for the life history of migratory animals. It is demonstrated that the existing models have a hybrid character, and they do not clearly distinguish between ultimate and proximate aspects. An interesting case of the Secchi-disk disappearance depth is cited as a good surrogate for the attenuation coefficient that helps to theoretically determine the amplitude of migration in lakes differing in their water clarity.

In Chapter 6, the role of light and temperature as abiotic factors is explained. Chapter 7 deals with optical orientations of cladocerans and copepods, including a description of the sense organs, the orientation function of the compound eye of *Daphnia* and the naupliar eye, especially that of the copepods. Chapters 8-10 give an extensive description of the DVM as encountered in the field, i.e. based on the author's own, extensive field data. Chapter 11 deals with what the author calls as confrontation of experimental and field data, an interesting attempt to validate

the different ideas. The chapter presents some hard facts relating to changes in the population size of daphnids during periods of migration, using examples of population dynamics of *Daphnia galeata x hyalina* in Lake Maarsseveen where Dr Ringelberg carried out his life-time works. In Chapter 12 the author argues that in the absence of DVM, competition would be severe as well as speculates that DVM is not only responsible for decreased predation but also for less competition. Some interesting cases of increase of *Daphnia* population during the DVM facilitated migration and equally interesting explanation for an increase in the number of gravid females and larger size of the clutches are given.

Chapter 13, the conclusive book chapter, recapitulates the importance of behavioral studies and their comparisons in marine and freshwater biotopes. Notes are provided on chemical nature of the infochemicals and information exchanges, given under the caption ‘Finally’ how to continue research. Dr Ringelberg prophesizes genetic analysis to become of greater importance in the DVM Research, not through more work on the vertical distribution and migrations in the field but through sampling programmes designed to solve special problems.

I enjoyed reading this book, even though selectively, i.e. in part for this review. I am confident that most readers will have a similar experience as mine: the book indubitably fills a niche in the field of migration behaviour in aquatic organisms, namely, the zooplankters, in response to rate of the diel changes in light intensity in the presence of predatory fish (+kairomones), or their absence. It is remarkable how Joop Ringelberg draws on the untapped information in the literature, including a substantial portion of his life-time time work, and blends and collates his own laboratory and field data. This last concerns complex, cumulative effects of changes in light and fish kairomones on the migrating zooplankton. Joop generally presents these complicated findings in a very readable format in this book.

I think the book is a must for both students and researchers engaged in behavioural studies of zooplankton and how these organisms constantly adapt to their dynamic environment changing diurnally, involving enormous risks and trade-offs.

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Symoens Prize for Tropical Limnology

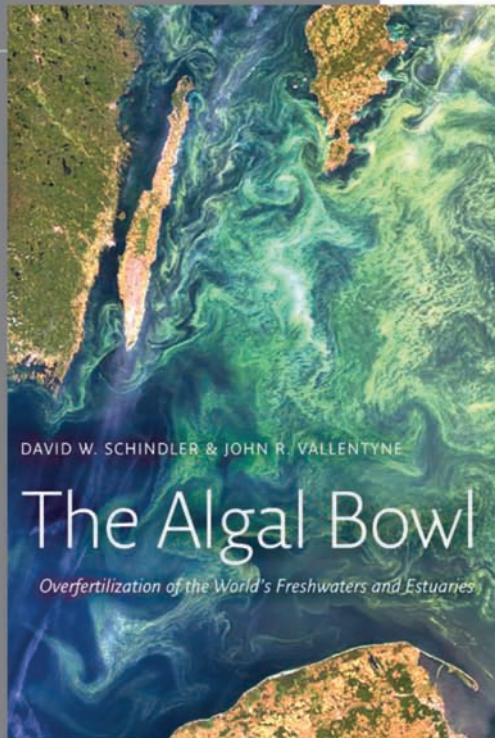
In 1992 the Belgian Royal Academy for Overseas Sciences set up a fund for a three-year Prize of 2,500 Euros, named ‘Jean-Jacques & Berthe Symoens Prize for Tropical Limnology’, which is intended to reward a memoir of great scientific value on a subject related to tropical limnology.

The Prize was awarded for the fifth time in 2008 to Dr Hugo SARMENTO (Portugal) for his study “Phytoplankton Ecology of Lake Kivu (Eastern Africa)”. Next awarding will occur in 2011. Information about this Prize may be obtained at: Royal Academy for Overseas Sciences, avenue Louise 231, B-1050 Brussels, Belgium. Tel. 32-2-538 02 11. Fax 32-2-539 23 53. E-mail: kaowarsom@skynet.be. Website: www.kaowarsom.be

The Algal Bowl

Overfertilization of the World's Freshwaters and Estuaries

David W. Schindler & John R. Vallentyne



David W. Schindler & John R. Vallentyne
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In 1974, John R. Vallentyne predicted that by the year 2000 we would be living in an environmental disaster he called the Algal Bowl. Just as the Dust Bowl of the 1930s was created by misusing western farmland, he forecast that the continuing misuse of lakes could only lead to water degradation. In the first edition of *The Algal Bowl: Lakes and Man*, he explained how the biology of lakes is changed by an overload of nutrients—a process known as eutrophication. Vallentyne demonstrated that human activity was the primary cause of eutrophication and therefore responsible for the explosive growth of algae. His efforts helped move policy makers in North America to action regarding the dangers of phosphates in fresh water.

Witnessing the escalation of eutrophication, Vallentyne invited his colleague, David W. Schindler, to substantially revise this groundbreaking book. Along with updates to the scientific data, Schindler added five chapters of new research, including the effect of eutrophication on ocean estuaries. Two of North America's leading water scientists joined forces to explain the science and strategies that are essential to understanding and protecting whole water systems from eutrophication and massive algae blooms. Scientists, opinion leaders, policy makers, and concerned citizens will find this fully revised and expanded edition an unambiguous diagnosis and prescription for change.

David W. Schindler, O.C., F.R.S.C., F.R.S., is Killam Memorial Chair and Professor of Ecology at the University of Alberta, Edmonton. He has received numerous awards for his work, including the first Stockholm Water Prize (1991), the Volvo Environment Prize (1998), the NSERC Gerhard Herzberg Gold Medal for Science and Engineering (2001) and the Tyler Prize for Environmental Achievement (2006).

John R. Vallentyne (1926–2007) was an influential research scientist with the Freshwater Institute in Winnipeg. He later became Senior Scientist with the Department of Fisheries and Oceans in Ottawa. He received the Rachel Carson Prize (1992) and the A.C. Redfield Lifetime Achievement Award (2002) from the American Society of Limnology and Oceanography. In 2008 the IAGLR created the Jack R. Vallentyne Award to honour his advocacy.

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