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NEWSLETTER

INTERNATIONAL LAKE ENVIRONMENT COMMITTEE FOUNDATION

— For Better Lake Management —

This Newsletter is also available in Japanese.

World Lake Conference
The focus moves to Shiga in 2001

Scenes from Copenhagen 99

As the weather turns cooler (at least in the northern hemisphere) and the hot days of summer and the balmy spring weather recede into memory, it is tempting to forget some of the events that shaped the year. We are prone to look forward and sometimes forget to give things that happened even in the immediate past their full recognition. In this case we are talking about the Lake99 which was held in May in Copenhagen, Denmark.

Statistics never tell the full story, but for the record we can state that 457 participants from 60 countries attended the official conference which was held over four days (with workshops and excursions before and after) and heard lectures and presentations on such diverse subjects as toxic substances, lake development, modelling, restoration of lakes, tropical and temperate lakes and sustainable management, to name but a very few.

In a brief closing summary Professor Jørgensen, chairman of the ILEC Scientific Committee, summed up what he considered to be the message from the conference. He said that to a large extent lakes can be managed from a scientific and technical point of view, because we understand how lakes work and we know how to monitor, model and recover them. There were areas that much more work was needed and he highlighted toxic substances as one such area.

He said that the major problems of lake management are related to problems such as citizens' involvement and economic, social and cultural issues. He was of the opinion that integration of scientific disciplines was achieved to a considerable degree, but what was now needed was an integration of economic, social and cultural disciplines. He further stressed the importance of education at all levels in this context and the need to interact with NGOs.

In this issue of our Newsletter we take a brief look at some of the sessions held during the Conference and also have articles written by participants. The focus now moves to the next World Lakes Conference which will be held in Shiga in November, 2001. We hope it will be as successful as Lake99.

IN THIS ISSUE

Lake 99 - Sessions

Salinisation: a major threat to water resources in arid and semi-arid regions – *W.D. Williams*

Almost one third of the total land area of the world is semi-arid or arid (with mean annual rainfall of 25mm to 500mm) and inhabited by over 400 million people. A major impact of increasing importance on water resources in such regions is secondary salinisation, that is, increases in the salinity of waters brought about by human actions. The results are invariably adverse and practically irreversible. Whilst these impacts are well-recognized on national levels, their global extent and importance is less recognized. All types of water have been impacted or are under threat of salinisation. Of particular significance are freshwater lakes and wetlands, rivers and streams, and large permanent salt lakes.

With regard to fresh waters, the most important causes of salinisation are land-use changes in catchments and irrigation. The removal of deep-rooted plants (deforestation) and their replacement by shallow-rooted plants (crops) is particularly significant (leading to so-called dryland salinity), because it causes the water table to rise. When near the surface, capillary action brings the water to the surface where solar evaporation deposits salts. These are subsequently leached to fresh waters in the catchment area. Irrigation acts in a similar way: excess water causes the underlying water table to rise. It is particularly significant when subsurface water is already saline.

Even small increases in the salinity of fresh water are important since the halotolerance of most freshwater biota is limited. And for human use, increases of less than 1 g/L are usually catastrophic as waters with a salinity of more than 1 g/L are generally useless for most sorts of irrigation and drinking. The economic costs are therefore enormous. At the same time, ecological conservation and other costs are not unsubstantial. A major cost here is a loss of biodiversity.

The management of salinisation of fresh waters takes various forms. Catchment management is especially important (re-forestation, management of saline drainage water, cessation of removal of natural vegetation). The lowering of water tables by the pumping of underground water is also important, especially in irrigated regions. However, the problem then is of where to dispose of the water pumped from underground. One solution has been to place it in so-called 'evaporation' or 're-charge' basins. This may lead to secondary problems such as the accumulation of toxic elements (e.g. selenium) and is, in any case, essentially a short-term solution.

With regard to large permanent salt lakes, many throughout the world are now undergoing unnatural increases in salinity caused by human activities. The best-known example is the Aral Sea in Central Asia where salinity has risen from ~10 to >30 g/L in recent decades. Other examples are Qinghai in China (~6 to 12.5), Mono Lake in North America (~45 to 90), the Dead Sea in Israel/Jordan (~200 to >300), and Lake Corangamite in Australia (~ 35 to 50). A few large salt lakes have not shown increases in salinity (notably the Caspian Sea).

In all cases where salinity has risen, the primary cause has been the diversion of inflowing (fresh) rivers and streams for irrigation and other purposes. The effects are most clearly illustrated by reference to the Aral Sea. Here, the diversion of water from the Amu and Syr-darya resulted in falling water-levels (and thus increases in salinity), exposure of extensive areas of the lake bed, a decreased water surface area, an increase in the frequency of dust storms, and the salinisation of surrounding lands. The costs have been very large. The fishery collapsed; the extensive archipelago in the southeast of the lake that was of critical significance to large numbers of migrant waterfowl and to local wildlife was destroyed; the use of the lake for transport ceased; agricultural production fell; and human health suffered.

The one effective management action to prevent further salinisation of large saline lakes is to restrict the diversion of waters from inflowing rivers. Some reservoirs have already been put in place to stop the salinity of Mono Lake in North America. However, plans exist to divert water from Mar Chiquita in Argentina, a major feeding and resting site for migrant waterfowl (500,000 per annum).

The Aral Sea at Aralsk, Kazakhstan

Aralsk was once a thriving port. All that remained of the lake in this region in 1991 was a remnant pool of brine. Is this to be the fate of all waters in arid and semi-arid regions?

Limnology and Management of Middle Tiete River Reservoirs in Sao Paulo States - *J.G. Tundisi*

At Sao Paulo State, in southern Brazil, several reservoirs were built for hydroelectric power generation in the last 50 years. These large artificial ecosystems represent today an important economic, ecological and social asset. Although built for just one purpose, these systems are today subjected to several multiple uses such as hydroelectric power generation, fisheries, recreation, tourism, navigation, water supply and several other local uses such as irrigation for agriculture. They are subjected to intense eutrophication by water discharge from Sao Paulo city located some 300 km of the upstream reservoir (Barra Bonita). The reservoirs are relatively shallow with a complex pattern of vertical and horizontal distribution of variables (physical, chemical and biological). The management of these systems pose complex operations related to structural measures such as the control of retention time, use of multiple outlets at the dam site, reforestation of the watershed and reintroduction of native species of fishes. Other structural measures are related to construction of pre-impoundments, removal of macrophytes and use of spill water to control phytoplankton blooms. Non-structural measures are implemented by consortia of municipalities in each watershed. The focus is on non-point source control for eutrophication prevention and on fostering partnerships between the public and academia for water management.

These resources will be a source of permanent development since they represent a new opportunity for alternatives of economic and social developments. The construction of channels, ports, hotels and tourism resorts will produce an investment of US$10 billion in the next 20 years (private investment). Therefore, it is necessary at the same time to promote creative and new projects and programmes for sustainable management and this involves scientific and technological advances and participation of the public to promote better and sound possibilities for development.

Great Lakes of the World

Community leaders and practitioners from eight of the "great lakes" of the world convened in a workshop session at the Lake 99 Conference in Copenhagen. Panelists presented case studies on their own experiences with implementing an integrated approach to managing large lake watersheds. Despite the fact that they are at different levels of institutional development, participants agreed that there are remarkable similarities among the management issues they face and that there are tremendous benefits in sharing their experiences and learning from each other.

The Great Lakes of the World session was the first international gathering of LakeNet, a global network of people and organizations responsible for the conservation and sustainable management of lakes. LakeNet was established in 1997 as a program of Monitor International to facilitate the exchange of experience, practices and technologies related to integrated watershed management in lake regions. Founding members of the network met everyday during the Lake 99 conference to share experience and plan future activities and programs.

What makes a lake great? For purposes of the workshop session, "great lake" was defined in a very general way as those lakes which are important on a global scale, either because of their actual size or uniqueness, or because the lake is particularly important, either culturally or economically, to people who live and work in the lake regions. Many of the lakes are international waters or have received recognition or are under consideration as a biosphere reserve, world heritage site, or other special national designation.

"While lake researchers and scientists have had a forum to share ideas and exchange information through groups such as ILEC and other professional limnological associations, practitioners and managers have not had such a forum on an international level," commented Lisa Borre, coordinator of LakeNet and one of the organizers of the session. "We kept hearing from people all over the world about the need for those responsible for lake management to network together and learn from each other's experiences".

For this first gathering, workshop organizers invited speakers from a representative group of these lakes, placing a priority on those which have either initiated or expressed an interest in exchanges with people from other lake regions. Case studies from the following lakes were presented:

Lake Baikal	(Russia)
Lake Champlain	(US/Canada)
Laguna Lake	(Philippines)
Lake Ohrid	(Albania/Macedonia)
Lake Peipsi/ Chudskoye	(Russia/Estonia)
Lake Titicaca	(Bolivia/Peru)
Lake Toba	(Indonesia)
Lake Victoria	(Kenya, Uganda, Rwanda Burundi, Tanzania)

The session focused on institutional arrangements for lake management. In a peer group setting, participants discussed two common themes: forming effective cooperation and collaboration among government, private businesses, non-governmental organizations (NGOs), scientists and citizens: and inter-jurisdictional approaches, especially those relating to international borders, but also including inter-provincial boundaries.

The participants represented a diverse group and found that their lake regions are at various stages of institutional development. "I am an economist, not a scientist or specialist in lake management. I am vice chairman of the Lake Toba Heritage Foundation, a group of activists who are trying to convince the government of Indonesia to establish an authority to manage the numerous competing interests on Lake Toba" stated Prof. Dr. Bungaran Saragih of Indonesia.

Lisa Borre

When asked about institutional arrangements for cooperative management of the world's largest lake, Tatiana Garmaeva of the Baikal Institute for Nature Management replied. "Lake Baikal contains 20% of the world's freshwater and is one of the oldest lakes in the world. Its watershed is shared by three republics, and yet there is no mechanism for fostering coordination or resolving resource management conflicts among the regions".

Aija Kosk of the Center for Transboundary Cooperation in Estonia, was interested in learning from others how they began. She asked, "What was the first step? How did you get started? Even the initial steps in the process need to be documented so that others can learn from it". Like several others in the session, the Lake Peipsi Project is operating with a loan from the Global Environment Facility under the International Waters Program.

"Putting the concepts of integrated watershed management into practice is very challenging, especially when one considers the political and economic situations in some of these lake regions," Borre commented. Regardless of the economic or political situation, workshop participants found that their individual and collective experience is very relevant and that there is a need to learn from this experience and network together.

The proceedings of the workshop, including summaries of the individual case studies and a synthesis of the panel discussion, will be published in an upcoming issue of the ILEC Journal Lakes & Reservoirs: Research and Management.

LakeNet is a global network of people and organizations responsible for the conservation and sustainable management of lakes. For more information contact:

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NGO workshops at Lake99

An NGO workshop was held on the second day of the conference, at the Falconer Center - venue for the whole conference. The following eight presentations were made at the workshop and here we give a brief report on three of these.

1. Living Lakes – Udo Gattenlonher
2. Friends of Kolindsunds – Jesper Nielsen
3. Saving the Village Pond – Per Larsen
4. Activities of Hojo no Sato – Akanoi Bay Basin Association – Hitomi Tsuji
5. Research Association for Water and Culture, 10 years research of Fireflies – Noriko Arai
6. Introduction of the Citizen Forum for Conservation of Water Environment around Lake Biwa – Mitsuko Hayashi
7. Introduction of Reed Crafts – Katsuhiro Takeda
8. Ai Network – Kimiko Kise

Living Lakes (Germany)

Living Lakes is a project founded by the Global Nature Fund (GNF) in Germany in 1998. (GNF is a environmental NGO group which sets its aim as the conservation of nature and is related to German Environment Aid). The main activities of the project are:

- Global Lake Project: Ascertaining what sustainable development of lakes, tourism, partnerships with corporations, and etc. should be.
- Exchange of experience: Exchange of experience and information about the conservation of lake environment.
- Internet: sending out information from its website.
- Environmental Campaigns: enlightenment activities and others.

A notable characteristic of this project is that it is supported by such influential businesses as Unilever, Daimler Benz and Lufthansa. For further information on the Living Lakes project, look for the article Living Lakes on page 4.

Friends of Kolindsunds

Friends of Kolindsunds received funding a mere two months before the conference. The group has 36 members and consists of specialists in various fields.

Lake Kolindsunds used to be the second largest freshwater lake (2400ha) in Denmark. The lake vanished due to land reclamation, and now it is used as agricultural land. The decomposition of organic matters in the bottom mud was advanced by exposure to air, which caused the serious problem of land subsidence. Due to this land subsidence, the existing sewage facilities are not working properly. Furthermore, insufficient sewage causes intrusion of saltwater from the ground. For such reasons, the agricultural lands are being devastated and the problems faced by local farmer's are getting more serious. The group proposes the restoration of nature from the reclaimed land into lake.

Saving the Village Pond

Recently, ponds have been disappearing due to reclamation. Even the ponds that remain are polluted seriously by eutrophication and agricultural chemicals. In the last 20 years, 80% of amphibious animals have died and the white stork is almost extinct. At present, activities for the revival and regeneration of both ponds and amphibious animals are being carried out together with four local committees of the Danish Society for the Conservation of Nature.

An NGO workshop in session

Excursions

The excursion (field trip) for NGOs was held on the third day of the conference. It included a course to tour almost half of Sjoelland, Denmark in a day.

The total number of participants for the tour was 69 which far exceeded the numbers that the organizers had expected. The bus traveled along roads that bordered lush green pastures, wheat fields and cornfields and yellow carpets of rape blossoms. We spotted very tall windmills (for wind power generation) on the way.

Lake Arre

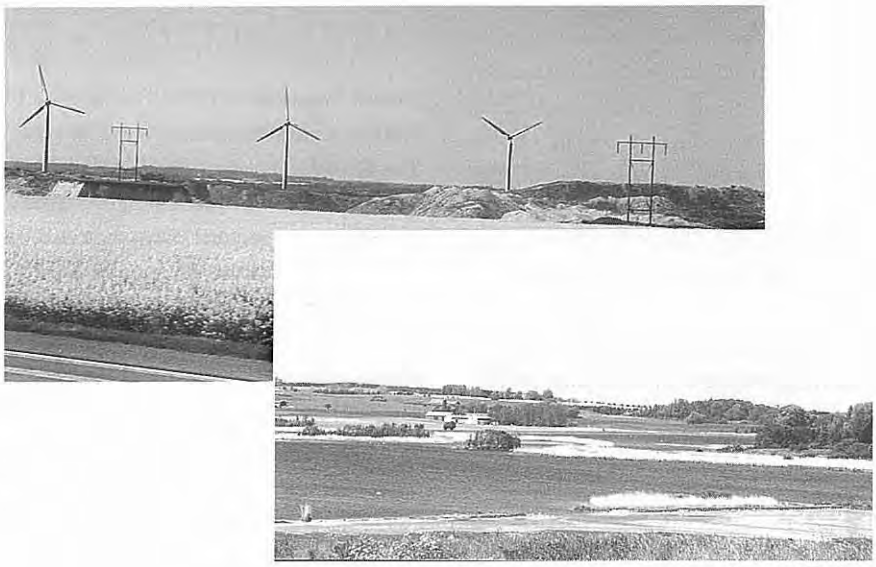
The first port of call was Lake Arre, the largest freshwater lake in Denmark. Mr. Peter Jørgensen, the Frederiksborg Regional Council local NGO representative, gave us a presentation on the clarification project of the lake.

Like all the freshwater lakes, its use is limited to recreation. It is not used even for agricultural water, much less drinking water. Since the water quality has deteriorated, carps have become the dominant species and people rarely fish the lake.

The water quality of the lake started to deteriorate around the 1970s, due to household wastewater from the catchment area and run-off from the agricultural land. In 1984, phosphorus concentration reached up to max. 1mg/L. As a result, massive fishkills occurred in 1985 and this opportunity was used to establish the Water Plan No. 1 to control nitrogen emissions into the sea area. A Lake Arre Association with about a 400 membership (200 of whom were landowners) was established in the autumn of the same year. Active campaigns by the association led to a clarification project for water quality of Lake Arre in 1986 (mainly, improvement in capacity of sewage treatment plant) and a series of projects resulted in the phosphorus concentration of the lake decreasing to 0.2 mg/L.

Tibirke Bakker

Next, we visited Tibirke Bakker, a watershed under restoration (the planned work area is 90ha, 60ha of which is being restored as an inland lake.) This was also a tentative agricultural land in Denmark reclaimed from a freshwater lake. Because of land subsidence after reclamation and intrusion of saline water, the land could not be used for agriculture. The land was designated as a protected area for the restoration of wetland. The cost of restoration is 2,500,000 Krone (approximately US$500,000). After restoration is completed, the land area is to be rented to local farmers for use as grazing land.



Lake Selso

Lake Selso

This lake also was re-established from agricultural land in order to restore the lake to its original state and was enlarged into three times what it used to be. Detailed specifications of the lake are unknown. The surrounding area is designated as a protected area. The purpose for this project is simply to create better nature and environment.

VEGA

We visited VEGA which is a refuse incinerator with the most up-to-date facility in Denmark. The facility accepts refuse from 86,870 citizens living in three municipalities and from 5,000 enterprises (80% of the refuse is from enterprises, 20% from households). The actual amount of refuse handled was 200,000 tonnes in 1997 and 230,000 tonnes in 1998. About 50% of the refuse is recycled, 30% incinerated, and the remainder disposed of by reclamation. The residual heat in incinerating is effectively utilized as a heat source of the area heating systems.

In Denmark, screening of refuse (separating according to type) is promoted actively. Since June of 1999, the regulation of recycling for household electrical appliances has been enforced. There was a recycling plant for household electrical appliances in the facility and it is a pioneering plant in Denmark.

At Lake Arre

LIVING LAKES

ILEC has joined the Living Lake partnership. It is an international lake partnership created and coordinated by the Global Nature Fund (GNF), a non-governmental and non-profit organisation working out of Germany. A main task of the foundation is to promote sustainable development objectives at international level. The partnership promotes voluntary international collaboration among organizations carrying out projects benefiting lakes, wildlife, and people.

The overall intent of the International Lake Network is to prepare the ground for an on-going and sustainable international dialogue, exchange of know-how and technologies and experiences between environmental NGOs of lake regions. The Lake Network supports activities and campaigns including competent authorities and local businesses in the process.

Annual "Living Lakes" meetings will be held, thereby promoting the exchange of experiences – mainly via the Internet – and mutual help and assistance, if necessary. Besides using the Internet for network communications, Living Lakes will create linkages on the Web that will enable people around the world to get information and inspiration for conserving lakes in their own areas. In this way, Living Lakes will foster acting locally and thinking globally.

The members of the project meet regularly, exchange information, formulate statements, and co-ordinate single activities and agree further steps for common work. The major objectives of Living Lakes is to provide financial support for conservationists all over the world. The seven lakes that comprise the Living Lakes Network are Mono Lake (USA), Lake Constance (Germany, Switzerland, Austria), St. Lucia Lake (South Africa), Lake Biwa (Japan), La Nava Lake (Spain), Nestos Lake (Greece) and Lake Baikal (Russia).

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Lake 99 - participants talk

Tokuji Tomaru
Nikken Consultants, Inc.

The 8th World Lake Conference was held in Copenhagen this year during a delightful period of weather that even surprised the Danes. Conference Chairman Nielsen noted that there are over 1,000 lakes in the world with names and many more without. It was appropriate and enlightening to hold the conference in Denmark, which has actively dealt with the preservation of many of those lake environments.

I have been attending these conferences since Kasumigaura (6th) and I think that this one, which focused on environmental problems in enclosed waterbodies, was notable for the deep interest expressed not only by scholars, but also by local citizens and administrators. Along with themes about eutrophication and chemical pollution, there were many presentations about lake and watershed management from NGO's and policymakers. Such interest in the management and use of lakes is natural because they are becoming more and more important as expanding world population is pressuring freshwater supplies.

Professor Jørgensen wrapped up the conference by stressing how much was learned about lakes along with the importance of education and of listening to ideas from NGOs. I felt strongly one of the big issues was how the thronging masses of humanity can peacefully live on the small earth could be dealt with by proceeding with concrete activities based on the accumulated knowledge of the World Lake Conferences.

Professor Mohamed Rafeek Abdelbary

In an interview held during the conference, Professor Mohamed Rafeek Abdelbary, vice chairman of the National Water Research Center, Egypt and director of the Nile Research Institute, gave us his opinions on participation at Lake99.

I received information about the conference from the Embassy of Egypt in Copenhagen and am also a recipient of the Ibaraki Kasumigaura Prize presented here. As someone involved in the management of the second largest man-made lake in the world (Lake Nasser) the conference has been very useful for gathering information on the management of lakes. Furthermore, it has provided much food for thought for further research.

What makes a conference like this so useful, however, is not just the contents of presentations and papers, but the people one meets. I have met people that otherwise would have remained names on a printed page. These are all people that can be contacted for information and advice the next time I need help on a given subject.

If I had some criticisms about this conference, it would be that the registration fee was very high and that it would have been good to see more participants from developing countries. That is to say more support could have been provided to attain greater participation from such countries. These are two issues that should be addressed seriously for the next conference in Shiga, which I hope to attend.

ILEC sponsorship group

Lake 99 - participants talk

Dr. Javier Alcocer

One of the participants sponsored by ILEC, Dr. Alcocer gives us his opinion on the pre-conference course he attended and on the conference itself.

I will try and express in a few words my experiences during Lake 99. The pre-conference course on reservoir management was excellent. Professor Tundisi has considerable and wide-ranging experience with tropical reservoirs and a great deal that is specifically applicable to Mexican reservoirs. Limnology with regard to Mexican reservoirs is limited to say the least, therefore the recently published ILEC Guideline book (edited by Professors Tundisi and Straskraba) and the tips given by the two professors at the course will surely benefit and promote the study and understanding of Mexican reservoirs. Furthermore, Professor Straskraba's simple introduction to practical aspects of reservoir management was also very useful. I think the course was a great success and should be included in future ILEC gatherings and certainly at the next World Lake Conference.

Moving on to the Conference itself, the array of lectures on different subjects made choosing which lectures to attend very difficult. In my case I decided to go to lectures in which I had a personal interest or those that were applicable to the Mexican environment. The Plenary lectures were also a principal attraction. However, the best part of the conference was the possibility of starting collaboration with researchers in other countries and the chance to discuss interesting ideas and findings with like-minded colleagues.

Mr. Mitsuharu Kitanaka
Engineering Department
HIYOSHI Co., Ltd.

Though I am relatively young and inexperienced, I was fortunate enough to be allowed to accompany the delegation group from Japan to participate in the Lake 99 Conference. I was in rather a neutral position because I am not a member of an NGO, an administrator or an academic.

Although approximately 60 sessions were scheduled and approximately 390 presentations were carried out during the conference, my stay there was for just two days. It was a pity that I could not hear most of those lectures directly, but on the other hand it was good to have the time to get closer to people from NGOs and understand the situation in Northern Europe.

First, during the whole period I stayed, I was moved by the perfectly blue and clear sky over the horizon. The refreshing breeze was beyond words, however it is an irony that this westerly breeze carries acid rain from industrial districts in England and Germany, and this problem is getting serious even in Northern Europe.

Secondly, the strength of people's attitude to restore and protect their nature made a deep impression on me. I was further impressed with some systems they implemented which presented a stark contrast with Japanese systems. Administrators, public citizens and corporations appear to take action together as three concerned parties.

NGOs in North Europe work closely with administrators to in order to advance their activities and work. In this way they can expend their energies and efforts more efficiently and closer cooperation with local and national governments results in a more effective outcome. This method of working is not only a smart use of resources, but benefits all in the long-run.

It is unfortunate that Japanese NGOs still have small memberships even today. Furthermore, their authority and spheres of influence are very limited. Regarding the substance of their activities, most of their work is involved in trying to sort out problems after they have occurred. However, I have to say that I was very impressed by the Japanese NGOs at the conference and I saw them in a light that I had not seen them before. Support from authorities is limited due to the lack of coordination between them and support from the public is also low due to financial difficulties because the coordination with enterprises is not enough.

If I was to make a suggestion, I think that what we need is to improve cooperation with private business more deeply and incorporate the strength and enormity of their power concerning capital, technology, publicity and networking. I also think that private business can play the role of mediation between administration and NGOs and public citizens. I do not think that this is so difficult a task to carry out. As mentioned above, NGOs in Northern Europe have already strengthened the source of their activities in that way and now they are planning to develop networks all over the world.

NGO participants listen to Dr. Ide

The 9th ILEC General Meeting

After the hustle and bustle of the World Lake Conference, you would think the members of the ILEC Scientific Committee would have been happy to get on their aeroplanes for long weary flights home. Not at all. On the Sunday and Monday after the Conference, 14 members met to discuss the future of ILEC at the 9th official meeting of the ILEC Scientific Committee.

Professor Jørgensen, chairman of the Committee, naturally headed the meeting and started by welcoming the newest member of the committee Ms. Dianne Dumanoski. He said that her communication skills would be "invaluable in the future work of the Committee".

Matters dealt with by the members included a review of the meetings of the Board of Directors and Council since the 8th official meeting in Argentina and ILEC programmes for the fiscal year 1998-1999. One of the more serious issues discussed, however, was the parlous state of ILEC's budgets and funds. In brief ILEC is faring no better than many other NGOs with an ever decreasing income. There was talk about the possibility of increasing income by creating a membership, but this measure was rejected due to hurdles such as ILEC's formal structure and legalities in Japan that prevented such a move for the present.

The Committee meets

Naturally enough, if one has just attended a World Lake Conference, one is very interested in where future such conferences will be held. As we state on the front cover, and as many of you already know, the 9th Conference will be held in Shiga, Japan and the schedule suggested at the Committee meeting was that the 10th Conference be held in Chicago, USA and the 11th in Zimbabwe.

The meeting was also favoured by presentations from Dr. Talal Younes, the Executive Director of International Union for Biological Sciences: IUBS and Mr. Thorkil Jonch-Clausen, the Global Water Partnership. Both organisations were looking for a closer relationship with ILEC and members of the Scientific Committee agreed that such a relationship was both desirable and necessary. It was decided that ILEC would look at ways to promote cooperation between the organisations.

Other matters discussed included participation in the World Water Forum, the ILEC Journal, the continuation of the Guideline series of books, greater cooperation with other NGOs, the need for more Scientific Committee meetings, training courses run by ILEC, the need for a Statement on the State of the World's lakes from ILEC and a long-term strategy for the organisation.

These are all matters that you will be hearing more about in future issues of the ILEC Newsletter as the Scientific Committee and indeed the Secretariat get to work to bring to fruition the discussions held over two days in Copenhagen.

Ms. Dianne Dumanoski is the newest member of the ILEC Scientific Committee. Not only is she first woman member of the Committee, she is also the first non-scientific member. Those of our readers that know of Ms. Dumanoski's work will probably remember her best for her co-authorship of the book "Our Stolen Future". The book that is a is a scientific detective story that explores the emerging science of endocrine disruption: how some synthetic chemicals interfere with the ways that hormones work in humans and wildlife.

We hope Ms. Dumanoski will use her considerable experience as a journalist with the Boston Globe to help bring the work of both ILEC and the ILEC Scientific Committee to a wider audience. We also hope to have articles by Ms. Dumanoski in future editions of our newsletter.

Those readers who have Internet access might like to go to the following website for more information about endocrine disruptors: http://www.osf-facts.org/basics/about.html

Dianne Dumanoski

Biwako Prize

The Biwako Prize for Ecology was established in 1991 by Shiga Prefectural for the purpose of contributing to the progress of studies on the aquatic environment in the field of ecology in East and Southeast Asia, including the eastern part of Russia, and Western Pacific Area, but excluding Australia and New Zealand.

The award ceremony was held at the Hikone Castle Museum on 12 October 1999.

Dr. Xie Ping
Professor,
Chinese Academy
of Science

By clarifying the mechanisms of food chain systems in lakes, Dr.Xie showed how the biotic compositions which are characteristic of seasons or lake-dependent are established. Based on these results, he verified the effectiveness of introducing phytophagous fish for eutrophication control in lakes and indicated the direction for management of ecosystem in lakes.

Dr. Takahito Yoshioka
Research Associate,
Nagoya University

Dr.Yoshioka introduced the carbon and nitrogen stable isotopic ratio measurement method for the analysis of ecosystems in lakes and brought new qualitative development to studies of this kind. He implemented the detailed analysis of food chain systems in lakes using this measurement method and showed that the measurement method can be also applied to the analysis of previous environmental changes in lakes.

For more information on the prize visit the ILEC web-site:
http://www.ilec.or.jp/prize/e-index.html

A look ahead

The 9th World Lake Conference will be held on the shores of Lake Biwa from November 11th to 16th, 2001. While two years may seem a long way off, preparations are already being made to insure that the conference will build and improve upon the successes of its predecessors. The conference theme, "Partnerships for Sustainable Life in Lake Environments: Making Global Freshwater Mandates Work," is quite a mouthful, but could not come at a better time.

The importance of lakes as freshwater resources is well known to the readers, but recent reports like UNEP's GEO2000 are certain to make the extent of the world's freshwater problem more widely known among the general public.

Details of the conference can be found on ILEC's homepage at http://www.ilec.or.jp/conf/2001Shiga/e_files.html.

Tentative subject areas, all dealing with lake and reservoir management, are as follows:

1) Unresolved issues in lake and reservoir management;
2) Global and international issues in lake and reservoir management;
3) Chemicals in lake and reservoir management;
4) Ecosystem degradation, biodiversity preservation and conservation in lake and reservoir;
5) Integrated approaches for wise lake and reservoir management;
6) Citizens initiatives in lake and reservoir management;
7) Environmentally sound industrial activities in lake and reservoir management

We look forward to your participation in the World Lake Conference in 2001.

Useful Web pages

ILEC has a "Link Page" on our website with links to some concerned organizations. The following are some useful websites you may be interested in.
http://www.ilec.or.jp/director/j-link.html

Lake Management
http://www.ilec.or.jp/
Our home page
http://www.nalms.org/
North American Lake Management Society
http://www.epa.gov/owow/lakes/
US EPA's Office of Water page on Clean Lakes Program

Freshwater Issues
http://www.gwp.sida.se/
Global Water Partnership
http://www.watervision.org/
World Water Vision with links to World Water Council and World Water Commission
http://www.unep.org/unep/eia/geo2000/
UNEP's new GEO 2000 report that looks at impending environmental issues in the next century

Environmental Economics and Policy
http://www.ecu.edu/econ/aere/
Association of Environmental and Resource Economists
http://www.worldbank.org/nipr/readings/index.htm
New ideas in pollution regulation from the World Bank

Others
http://www.pfiesteria.org/
Find information here about the fish-killing, human-harming, toxic dinoflagellate Pfiesteria piscicida

If you would like to have your webpage or any other listed on ours, please contact us at info@mail.ilec.or.jp

Thank you Dr. Nielsen

ILEC would like to say a special word of thanks to Dr. Nielsen, Chairman of the Organising Committee of the Lake 99 Conference. Without his considerable efforts not only during the conference, but in all the preparation and indeed the aftermath, it is unlikely that Lake 99 would have been quite the success it was. Thank you Dr. Nielsen and we wish you well in your retirement.

LAKES OF THE WORLD - HUVGSUL - MONGOLIA - *T. KIRA*

Lake Huvsgul is a deep tectonic lake (max. depth 267 m) located in the northernmost part of the Mongolian Republic close to the border of Russia at about 50°30'-51°30'N and 100°50'E. It is the largest freshwater lake of central Asia (surface area 2,700 km^2; 1,645 m above sea level on the uppermost reaches of the Selenge River that drains into Lake Baikal. The whole lake basin is designated as a national park for its scenic beauty of crystal-clean water, surrounding fine forest cover and little-disturbed unique biota. The nature and environments of the region were extensively studied by joint Russian/Mongolian teams and later by a Japanese and USA limnologists since the 1970s.

The lake's catchment area is relatively narrow, 1.8 times as wide as the lake itself, hilly, and bordered by high mountain ranges exceeding 3,000 m in altitude on its western and northern sides. The climate is cold and continental with four months of growing season (May-Aug., monthly mean temperature 5.5 to 11.4°C) and a long severe winter (-20.4 to -22.7°C in Dec.-Feb.) at Hatgal, a settlement on the southernmost shore of the lake.

Almost pure strands of Siberian larch (Larix sibirica) covers the catchment's land surface continuously, except on high mountain ridges beyond the timber line and scattered grassy slopes. The precipitation is too scarce (300-400 mm/yr) to support closed forest cover elsewhere in the boreal zone, but deciduous conifer forests dominated by larch are allowed to thrive here owing to the prevalence of underground permafrost layers as in other inland parts of eastern Siberia. Ever-freezing subsoil retains enough rainwater in the surface soil during summer, while the low soil temperature in the root zone suppresses evapotranspiration from the vegetation.

Lake Huvsgul

A unique landform feature of permafrost regions is that hill slopes facing S/SW are often steeper than N/E slopes, lack forest cover and bear herbaceous plant communities. Since S/SW slopes are strongly heated during summer at high latitudes, the surface soil tends to melt deeper to accelerate erosion and become too dry to support forest stands. Here, such grassy slopes are thoroughly utilized by local residents for grazing their livestock (cattle, yak and goat), though the catchment is very sparsely populated (current total population probably a few thousands, rapidly decreasing). There are only two small settlements, Hatgal and Hanh, respectively at the southern and northern end of the lake.

The lake water is fed mainly by a few large tributaries entering the lake's northernmost part, and flows out from its southern end via the Egyn River to the Selenge. The lake water quality is oligotrophic, the transparency (Secchi depth) generally exceeding 20 m (sometimes reaching 30 m). Surface water temperature may rise up to 13-14°C in July-August, but remains constant at 3.5°C all the year round below 20 m depth down to the lake bottom.

Where the shore slope is more or less steep, beaches and littoral substrata are mostly made of coarse gravel and rocks with poor benthic flora and fauna (see photo). Near the estuary of larger tributaries, however, marshes and muddy beaches develop with fairly rich emergent/submerged plant communities and benthic fauna. Humic substances carried by river water from bogs and marshes seem to be an important source of nutrients for the lake.

It is noteworthy that larch forests fringing shorelines very often extend into lake water, foremost rows of trees standing submerged and dying (photo). This indicates a significant rise of lake water level in recent years. According to the analysis of water level monitoring records, the lake water level actually rose by ca. 60 cm during 1967-1987, and the rise corresponded to the simultaneous rise of mean air temperature observed at Hatgal. The effect of global warming may be suspected.

According to the park management regulations, the use of the lake is limited to sightseeing. The surface transport of oil imported from Russia from Hanh to Hatgal was discontinued because of the pollution of the lake due to oil spill. Particularly dangerous was the accidental sink of tank lorries caused by the breaking of ice during winter transport over the frozen lake. More than 10 five-ton lorries have already been lost in this way, though no apparent signs of oil pollution have yet been observed.

Another source of pollution is the mining of phosphorite among the western shore mountains. According to the park office, PO4-P concentration in the lake water is apparently higher along the western shore than in other parts of the lake, so that further exploitation may cause a serious issue.

The unique biota of Huvsgul Lake is significantly different from that of Lake Baikal downstream. The extensive stretch of pure Siberian larch forest, even lacking the mixture of birch, alder, etc., which are common in other parts of east Siberian larch forests, represents a rare type of taiga vegetation, but non-arboreal flora and wildlife fauna are quite abundant. These scientific values, together with the magnificent natural landscape, make Huvsgul Park one of the valuable natural treasures of Mongolia and the world. Its aquatic environments, still almost undisturbed by human activities, offer an ideal reference site for detecting global environmental changes. Mongolian authorities and foreign scientists concerned are now proposing to establish one of the long-term ecological research stations.

New Publications

Guidelines of Lake Management - Vol. 9 /Reservoir Water Quality Management,
edited M. Straskraba and J.G. Tundisi
(International Lake Environment Committee)
ISBN: 4-906356-26-5

Professors Milan Straskraba and Jose Tundisi have recently completed a new guideline book entitled "Reservoir Water Quality Management". By focusing on the water quality of reservoirs as opposed to lakes, the book fills a critical gap. Furthermore, the book is differentiated from similar efforts by the presentation of knowledge about reservoirs in both temperate and topical regions. The book also includes an extensive reference section that will be sure to help researchers.

ILEC Guideline Books Series:
Vol. 1 Principles of Lake Management
Vol. 2 Socio-Economic Aspects of Lake Reservoir Management
Vol. 3 Lake Shore Management
Vol. 4 Toxic Substances Management in Lakes and Reservoirs
Vol. 5 Management of Lake Acidification
Vol. 6 Management of Inland Saline Waters
Vol. 7 Biomanipulation in Lakes and Reservoirs Management
Vol. 8 The World's Lakes in Crisis
New! Vol. 9 Reservoir Water Quality Management

Each 1500 Yen (tax included)

For more information about ILEC Publications, please contact us, or check our website:
http://www.ilec.or.jp/pub/j_pub.html

Lakes & Reservoirs - Research and Management
Vol. 4, Issue 3/4
Editors-in-chief: Saburo Matsui and W.D. Williams
ISSN: 1320-5331

Articles include:
Salinisation: A major threat to water resources in the arid and semi-arid regions of the world - W.D. Williams

Enteroviruses in the recreational waters of Lake Orta - A. Maiello et. al.

Forthcoming Events

Second World Water Forum and Ministerial Conference

17-22 March 2000
Venue: Hague, Netherlands
Organizers WWC/Dutch Government
Contact: HANS VAN ZIJST
Tel: +31 (70) 339 46 66
Fax:+31 (70) 339 13 06
E-Mail HANS.VAN.ZIJST@dml.minbuza.nl
URL: http://www.worldwaterforum.org/

International Syposium on Integrated Water Resources Management

9-12 April, 2000
Davis, California, USA
Contact: Miguel Marino
139 Veihmeyer Hall (LAWR)
University of California
Davis, CA 95616-8628
USA
mamarino@ucdavis.edu

Limnology and Water Birds 2000 - Third Conference

1-5 May 2000
Tebo, Czech Republic
Contact: Dr. Peter Musil
Institute of Applied Ecology
Kostelec nad ernymi lesy
CZ-281 63
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Fax: +420 203 697500

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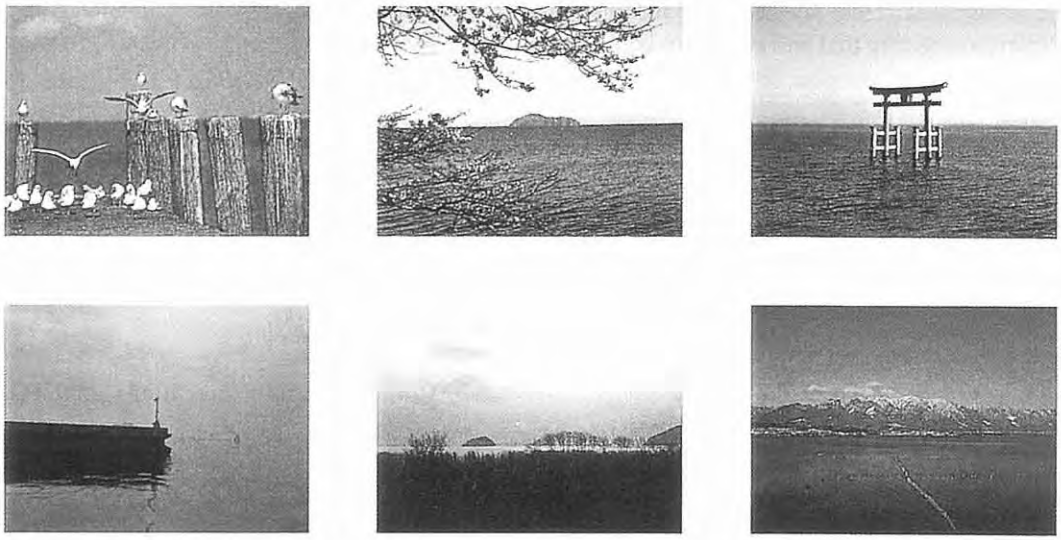
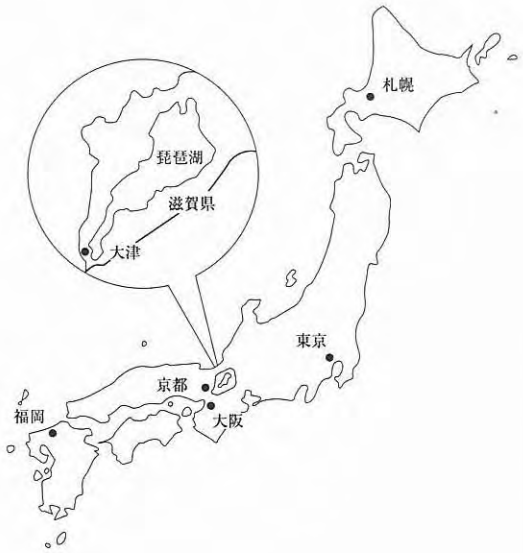
9th International Conference on the Conservation and Management of Lakes

Shiga, Japan 2001



Partnerships for Sustainable Life in Lake Environments:
Making Global Freshwater Mandates Work

11-16 Nov. 2001
Shiga, Japan



Organized by Shiga Prefectural Government /
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