ISSN 0912-7410

No.44 October 2003

# NEWSLETTER

International Lake Environment Committee

=Promoting Sustainable Lake Management=

This Newsletter is also available in Japanese.


## 10th World Lake Conference - A Resounding Success

The 10th World Lake Conference was held at DePaul University in Chicago, Illinois USA, during June 23-26, 2003. Holding the conference jointly with the 46th Annual Conference of the International Association for Great Lakes Research (IAGLR), the conference was a resounding success, drawing more than 650 registrants from the United States, Canada, Japan and about 28 other countries around the world. It attracted over 600 abstracts, comprising 45 individual technical sessions as well as an extensive poster session. A feature of the conference was a special symposium jointly sponsored by ILEC and the Great Lakes Commission on June 24, and included the participation of the Governors and other government officials of both the Shiga and Ibaraki Prefecture. This special symposium was a follow-up to the World Lake Conference held in Michigan, USA, in 1986, focusing on Great Lakes issues with relevance for lakes around the world, including toxic chemicals, water quantity, and alien invasive species. A technical session also was held on the World Lake Vision, including discussion of its relevance for lake and reservoir management efforts around the world. Recently launched at the 3rd World Water Forum in March 2003 in Japan, development of the World Lake Vision was sponsored by ILEC, the United Nations Environment Programme and the Shiga Prefectural Government. Walter Rast of the ILEC Scientific Committee also served as the Program Co-Chair of the joint 10th World Lake Conference and 46th International Association for Great Lakes Research Conference. The next World Lake Conference is scheduled to be held in Nairobi, Kenya in either the year 2005 or 2006.

In This Issue

# Integration of ILEC's major current projects

***By S.E. Jørgensen, Chairman of ILEC's Scientific Committee***

ILEC has launched three major projects during the last three years: World Lake Vision (WLV), Lake Watch (LW) and the Review of Lake Management (RLM) for 14 GEF supported lake projects and 14 non-GEF supported lake projects. The three projects are highly integrative. RLM will, to a certain extent, be based on WLV. Particularly, the seven principles of sound lake management, the eight immediate action proposals and the proposed long-term strategies, can be used as evaluation criteria for the projects and should be reflected in the briefs of the lakes. Many RLM lakes are also in included in LW and the information gained in RLM will inevitably improve our overview of the state of the world's lake in LW. The inputs from RLM will certainly be very clear in the next presentation of LW in Nairobi in year 2005. Seven threats are identified in LW and the idea behind LW is to follow the water quality parameters associated with these threats. Chapter two in WLV presents the same threats, although they are formulated slightly differently.

The objectives of LW are not only to follow the trends in certain water quality parameters but also to identify if immediate actions and long term lake management strategies as presented in WLV have been able to improve successfully the water quality, or at least to stop the deterioration of the water quality. It implies that LW provides "the lessons learnt" on which actions and long-term strategies that are working in which context- information that is of great importance for the next WLV, which probably will be presented at the 11th conference of Lake and Reservoir Management in Nairobi in 2005.

The information on lessons learnt – what is working and what is not working – will obviously be also be very useful in the RLM. So, very fortunately, ILEC's three major current projects demonstrate reciprocal synergistic effects.

*IAGLR Business Lunch at the World Lake Conference*

**Finnish participant Seppo Hellsten gives a report of the topic of interest to him during the Conference**

Water levels and biota relationships were discussed actively in a specific session chaired by Dr. Susan Doka. Most of the presentations were focused on water level regulation of Lake Ontario, which started almost five decades ago to eliminate the harmful floods of St Lawrence River. Despite relatively small (less than 50 cm) changes in water level fluctuation range of Lake Ontario, significant changes in wetland habitat quality took place in the lake causing a lower production of spring spawning fishes such as northern pike. Also some changes in wetland bird colonies were found as a consequence of habitat change. Small changes in lake water level led to a cut in the flood peak on the St Lawrence River by several metres, which has altered permanently whole wetland ecosystems near the city of Montreal. Future goals of Lake Ontario regulation include development of a comprehensive model to understand complex systems of water level regulation and habitats without forgetting the users of watercourses.

The session included also an overview of Finnish studies related to development projects of lake water level regulation. After the change of Finnish Water Act in 1995, there was a tendency to take also other water users than hydropower production and flood protection into account. Aquatic macrophytes are used commonly as indicators of ecological status of lakes, because they are sensitive for water level regulation and reflect also the general status of shorelines from the point of view of recreational users. Recently implemented EU Water Framework Directive will emphasize the importance of aquatic macrophytes as one of the key biological quality elements.

# Lake Basin Management Initiative Project - Manila Workshop

The 2nd Regional Experience and Lessons Learned Workshop of the ILEC-executed GEF-MSP Lake Basin Management Initiative Project was held in Manila, Philippines from 1-4 September 2003 at the Westin Hotel. The workshop brought together representatives from Lake Biwa (Japan), Laguna de Bay (Philippines), Lake Xingkai/Khanka (China/Russia), Lake Dianchi (China), Tonle Sap (Cambodia), Lake Toba (Indonesia), Lake Chilika (India) and the Bhoj Wetland (India) to discuss what has been learned about lake management from these eight lakes in Asia.

The workshop organizer and technical coordinator for the project, Thomas Ballatore, said "I was pleased with the way things came together in Manila. We took a chance by designing a very straightforward program with lots of time for open discussion. Our biggest risk was that participants wouldn't "participate" but we had a simply excellent group of people at the meeting and most discussions had to be continued over lunch or dinner. And logistically, we had superior support on the ground from Adelina Santos-Borja and everyone at the Lake Laguna Development Authority."

The first day of the workshop began with presentations from dignitaries such as the Hon. Elisea G. Gozun, Secretary of the Dept. of Environment and Natural Resources, the Hon. Augusto H. Baculio, Representative and Chair of the Committee on Ecology and Dr. Robert Vance Pulley, the World Bank Country Director. The afternoon, as well as the second and third days, were dedicated to presentations and discussion on the lake cases. The third day was held at Wonder Island, a small island located in the southern part of Laguna de Bay and provided a chance for the participants to see the lake itself and to stretch their legs. The fourth and final day were organized around thematic discussions related to lake management such as economics, policy, participation, finance, science and institutions.

For readers who were not able to attend the workshop, the "Experience and Lessons Learned Briefs" prepared by consultants for each lake are available for download at http://www.worldlakes.org/workshops/asia.asp ILEC would be most grateful to anyone who could take the time to read and comment on any of these briefs. An electronic forum has been set up at http://www.worldlakes.org/dialogue.asp and everyone is encouraged to participate. Messages may also be sent to gefmsp@ilec.or.jp for comments /questions regarding the briefs or project as a whole.

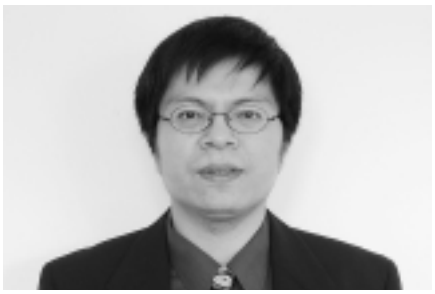
The final briefs for the Asian lakes will be complied by the end of October 2003. These briefs, along with the ones from the 1st Workshop in June 2003 (Americas, Europe and Central Asia) and the upcoming 3rd Workshop to be held in Nairobi, Kenya from 3-6 November 2003 will form the basis of the final report that will be produced by mid-2004. Again, everyone is welcome and encouraged to contribute comments about anything related to this project.


*Exchanging ideas on Laguna de Bay*

# 12th Biwako Prize for Ecology

*Prince Akishinomiya of Japan*

*Dr. Mori*



*Dr. Wang*

The award presentation ceremony of 'The 12th Biwako Prize for Ecology' was held on July 1st, at Biwako Hotel with the gracious presence of Prince and Princess Akishinonomiya of Japan. Only one of the two awardees, Professor Mori of Gifu Keizai University, was able to present his paper at the ceremony, with Assistant Professor Wang of Hong Kong of Science and Technology having to cancel because of the SARS issue at the time. Professor Iwakuma of Hokkaido University, the chairperson of the selection committee for the awardees, introduced Mr. Wang's research in his place.

For further information, please see: **http://www.ilec.or.jp/prize/e-index.html**

**Dr. Seiichi Mori** is currently Professor of Community Welfare Policy, Gifu Keizai University. He was granted the degree of Doctor of Science by Kyoto University in 1991. His research theme is 'Field research on behavioral ecology regarding the stickleback'. This time, he received the award with a thesis titled 'Behavioral ecology on the reproductive success of three spine stickleback hariyo and conservation activities: from individual to social structure'. He compared the forms of the freshwater threespine stickleback itoyo, and its subspecies hariyo, and their ecology in their natural habitats, conducted pairing experiments, and analyzed reproduction isolation in their reproductive behavior. As a result, he succeeded in confirming the process of evolution from the migratory type to the landlocked type. He also found that evolution to the landlocked type occurred separately in Japan and North America.

**Dr. Wen-Xion Wang** is currently Assistant Professor in the Department of Biology at Hong Kong University of Science and Technology. He was granted his Ph.D. by State University of New York in 1996. This time, he received the award with the thesis titled "Heavy Metals in the Aquatic Food Chains". He showed that the real state of trace metal element behavior through food chains in the water, and the factors that control such behavior.

## Experimental Environmental Education Program

The first 'Experimental Environmental Education Program' was held at ILEC for three days from July 28th to July 30th. This program is for higher grade elementary school children. This was the first year of the program and it sponsored by the Heiwado Foundation, which is based in Hikone city, Shiga Prefecture. Seventeen pupils from Shizu elementary school and Tokiwa elementary school (both in Kusatsu city) and one teacher participated in the program. The contents of the program were as follows.

- *Learning about the environment using Karuta (Japanese playing cards) and the picture story books.*
- *Water quality test using simple kits and phosphorous extraction experiments from daily foods.*
- *Observation of plankton in the water sampled from Lake Biwa.*
- *Making posters for raising awareness of the environment.*

The contents of the program were so varied that all the pupils commented on how quickly the three days passed by. On the last day, Mr. Furukawa, ILEC Secretary General, gave a certificate of participation to each student.

*Professor Kawashima with his young charges*

# Indonesian Lake Forum Established

A meeting on the conservation of Indonesian Lakes was conducted in Jakarta, Indonesia on June 4, 2003 at the office of the Minister of Environment of the Republic of Indonesia. It was the first national event focusing on lakes in Indonesia, and also a direct response to the call for action of the World Lake Vision presented at the 3rd World Water Forum. The meeting was attended by about 200 participants across the country, including heads of the Ministry of Environment and relevant national institutions, representatives from local governments, NGOs, scientists, and journalists. ILEC was invited to the meeting as an 'advocate' of the World Lake Vision.

The meeting was addressed by the Minister of Environment, followed by a keynote speech by the Deputy Minister on the current situation of lakes in Indonesia. ILEC introduced the 'World Lake Vision' and called for sustainable lake management initiatives in individual lakes based on the Vision. Prof. Dr. Payaman Simanjuntak, Chairman of Lake Toba Heritage Foundation, discussed social, economic and cultural potentials of lakes. The two case presentations followed, one by Mr. Tukul Santoso, Operational Director of Jatiluhur Reservoir on the benefits of Jatiluhur Reservoir and the other by Mrs. Wayan, Regional Environment Office, Bali, on the conditions of lakes in Bali.

Participants discussed the problems of Indonesian lakes and confirmed the need of cooperation to maintain their sustainability, either by exchanging information on the conditions of the lakes and or by running joint efforts. To this end the meeting participants agreed to establish the Indonesian Lake Forum, forming a working group consisting of representatives from national and local governments and institutions, academics, NGOs, and journalists. The working group will be responsible for nominating the Executive Members and draft Indonesian Lake Vision and Forum's action plans.


*Mr. Matsumoto of ILEC presides at the meeting in Indonesia*

# International Workshop on the Wise Use of Lagoon Wetlands

An International Workshop on the Wise Use of Lagoon Wetlands was held in Kushiro, Japan on July 23-24, 2003 to commemorate the 10th anniversary of the 1993 Ramsar Kushiro Conference. It brought together some 100 participants from Japan and East-Asian countries.

On July 23 an open forum was organized to reflect on the past 10 years since the 1993 Conference and to discuss future activities. In the main workshop on July 24, two keynote speeches and 15 reports, plus 5 poster sessions, were presented. It was reported that many of the lagoons are seriously affected by human-induced impacts. Another topic of discussion was how to convince the general public of the value of lagoons an urgent issue to protect them and achieve their 'wise use'.

ILEC participated in the event to introduce the World Lake Vision presented at the WWF3 and demonstrated that 'Wise Use' in the Ramsar Convention means 'Sustainable Use' in the World Lake Vision. Through two days of discussions, the workshop confirmed a need for collaboration between lake people and lagoon people because both of them are pursuing the same goals.

# Lakes of the World - Laguna de Bay, The Philippines

Adelina C. Santos-Borja

Laguna de Bay is the largest and most important lake in the Philippines. It has a surface area of 900 km$^2$ and ranks as one of the five largest lakes of Southeast Asia. The lake is also one of the shallowest lakes in the region with an average depth of 2.5 meters. Its shoreline of 285 km delineates the three distinct bays namely, the West Bay, Central Bay and East Bay. The West and Central Bays are separated by Talim Island, the largest and the only inhabited of the nine islands in the lake.

The watershed's area of 2920 km$^2$ is divided into 24 sub-basins from which more than 100 streams flow into the lake. There is only one outlet, the 27 km Pasig River, which drains to Manila Bay. During conditions when the lake level is lower than Manila Bay and when there is sufficient tidal fluctuation that could push the entry of saltwater into the lake, backflow of the Pasig River occurs. During, this condition, Laguna de Bay becomes a brackish water lake. The extent of saline water intrusion depends on the duration of the backflow and the prevailing climatic condition. The normal chloride concentration ranges from 250 to 350 mg/L but could reach to 4,000 mg/L at sustained backflow of the Pasig River. The intrusion of saltwater improves the lake's transparency due to the flocculation of suspended particles upon contact with saline water. This is a much-awaited phenomenon of the fishermen and aquaculture operators because it enhances the productivity of the lake.

Laguna de Bay is a multiple use resource but at present its dominant use is for open water and aquaculture type of fishery. A developing potential of the lake is its utilization as source of raw water for domestic supply.

In 1966, the Laguna Lake Development Authority (LLDA) was created by the Philippine Government with the mandate to promote and accelerate the development and balanced growth of the lake basin with due regard and adequate provisions for environmental management and control. It started operation in 1969 and its mandate was further expanded by series of laws that strengthened its regulatory function, but this was not complemented with appropriate increase in human and financial resources.

The LLDA is faced with a lot of challenges emanating from the lake basin which is occupied in whole or in part by the National Capital Region, and the provinces of Rizal, Laguna, Cavite, Batangas and Quezon, consisting of 8 cities and 49 municipalities of which 27 are lakeshore towns and 2 are lakeshore cities. Rapid industrialization and urbanization in the watershed are the biggest threats on the lake, from which siltation and pollution problems emanate. Rapid changes in the land use in the last twenty years have decreased the forest cover to only 5%. The total basin population is close to 6 million people but up to the present, there is no municipal sewer and sewage treatment facility except for septic tanks in most individual households. Thus, it is not surprising that 68% of the BOD loading in the lake comes from domestic sources. Industrial establishments used to be concentrated in the Metropolitan Manila area but have expanded to other cities and municipalities and has accelerated the conversion of agricultural areas into industrial and residential estates.

In 1996 the Master Plan of the Laguna de Bay was implemented. It places heavy emphasis on the prioritization of programs and projects in order to attain the sustainable development of the lake basin. Four flagship programs are currently being pursued namely environmental management, watershed management, fisheries development and institutional reform and development. The most significant measures taken were the following:

*Implementation of the Environmental Users Fee System (EUFS). This market-based instrument makes all discharges of industrial liquid waste directly accountable for environmental damages brought about by their day-to-day operations by internalizing the cost of environmental degradation and enhancement into their business decisions and actions. The EUFS complements the regulatory system, which the LLDA has been implementing.*

*Adoption of the micro-watershed approach in lake basin management. A River Rehabilitation and Protection Council, consisting of different stakeholders was organized in each of the 24 sub-basins. Through close partnership and coordination with the LLDA, they have initiated programs to improve their capacity in initiating plans and programs to rehabilitate the rivers.*

*Full implementation of the 1996 Zoning and Mananagment Plan (ZOMAP) of Laguna de Bay which delineates the fishpen and fishcage belts and sets the limit for ownership and operation of these structures by corporations, cooperatives and individual owners.*

*Re-engineering of the Laguna Lake Development Authority towards an Integrated Water Resource Management and Development Authority with the major aim of being a more responsive Authority on Laguna de Bay.*

The conservation and management of Laguna de Bay does not lie on the shoulders of the LLDA alone. Through its evolution in the last 34 years, the LLDA has highlighted the importance of community involvement, partnerships with different stakeholders and linkage with international institutions in achieving the goals of sustainable lake basin management and development.

## Call for Articles

**We are always looking for articles for our Lakes of the World series. If you would like to let the ILEC Newsletter readership know about your particular lake, please send us your articles of about 800-1200 words in length with a few suitable photographs for us to choose from. Free publicity for you and some interesting information for our readers. You can send articles by email or post at the addresses given on the bottom of back page of this newsletter.**

## World Lake Vision Executive Summary

The Spanish and German editions of the Executive Summary have been completed. ILEC is to trying to translate the Executive Summary into as many languages as possible so that we are able to help people around the world make their own Lake Vision with the aid of this document. You can take a look at these two Executive Summaries on our website (http://www.ilec.or.jp/).

## Forthcoming Meetings

Oct 20 - Oct 24, Havana, Cuba: The International Congress on Irrigation and Drainage.

Oct 22 - Oct 24, Sassari, Italy: Integrated Watershed Management International Conference.

Beginning of November - GEF Project Nairobi workshop.

8-9 December, Melbourne, Victoria, Australia: Symposium on Urbanisation and Stream Ecology.

Nov 17 - Nov 21, Chiang Mai, Thailand: First Southeast Asia Water Forum.

Mid Jan - Mid Mar 2004, ILEC: The 14th Lake Water Quality Management JICA training course.

Feb 19 - Feb 21 2004, New Delhi, India: World Congress on Natural Disaster Mitigation.

May/June 2004, Vancouver, British Columbia Canada: 52nd Annual Meeting of the North American Benthological Society.


## Chicago and the World Lake Conference

ILEC

INTERNATIONAL LAKE ENVIRONMENT COMMITTEE

–Secretariat–

1091 Oroshimo-cho, Kusatsu-city, Shiga 520-0001, JAPAN
TEL +81-77-568-4567, FAX +81-77-568-4568, E-mail: info@ilec.or.jp