



NEWSLETTER

– Save Water, Save Lakes –

International Lake Environment Committee Foundation

This newsletter is also available in Japanese.

The World Lake Conference Is Celebrating Its Thirtieth Anniversary in Perugia, Italy

As announced in the previous two issues of this newsletter, Italy will be hosting the Fifteenth World Lake Conference (WLC15), entitled LAKES: The Mirrors of the Earth - Balancing Ecosystem Integrity and Human Wellbeing, in Perugia during September 1-5, 2014. The Conference, which started after the Shiga Conference on Conservation and Management of World Lake Environment in 1984 (known as LECS'84) in Otsu, on the shore of Lake Biwa, Japan, is therefore celebrating its thirtieth anniversary. The aim of the LECS' 84 was to promote scientific approaches to lake basin management around the world. The success of this Conference convinced the government of Shiga Prefecture, in cooperation with the United Nations Environment Program (UNEP), to establish the International Lake Environment Committee Foundation

(ILEC). Ever since its establishment in 1986, ILEC has co-convened WLCs in various parts of the world including the USA, Hungary, China, Italy, Argentina, Denmark, Kenya, India and Japan. Today, the Conference is globally recognized as a forum for multi-sectoral participants (i.e., academia, government, citizens, NGOs and enterprises) to exchange their views and experiences on sustainable management for inland waters and their basins.

Thus, the continuing scope of the WLC is to bring together experts in the field of inland water environments and habitats, with the underlying goal of establishing a basis for developing multidisciplinary solutions to multidisciplinary issues. Further, since multidisciplinary is a keyword in regard to this Conference, different approaches and points of view are taken into account to address complex issues dealing with lakes and other inland water ecosystems. Therefore, the Conference is addressed not only to scientists, but also to resource managers, politicians, and lake basin stakeholders and users. The interactions among this diverse audience can result in a wider discussion, with the goal of connecting a top-down approach and a bottom-up perspective aimed at solving complex basin issues. Moreover, this event also would likely have a strong influence on young generations of researchers, managers and lake users, launching different didactic experiences for children and graduate students, and teach them how to focus on world lake issues and how to connect with others in a worldwide research network.



Perhaps most attractive to the participants is the locations of the Conference. Perugia, the capital city of the beautiful Umbria Region which also is known as the green heart of Italy, stands as one of the most well-preserved historical centers of Italy, showing vestiges of its millennial history (c.f., the page 8 article in the previous issue). The Etruscans once settled it about 2,500 years ago because of its rich water resources, including the nearby ancient lake Trasimeno. As one of the mid-conference field trip destinations, the lake will offer its visitors an extraordinary chance to witness some of the historical, cultural and natural heritage that is unique to the region (c.f., the page 8 article in this issue). The pre-conference registration is open at www.wlc15perugia.com. Join us in Perugia, we look forward to meeting you!



IN THIS ISSUE

- The World Lake Conference Is Celebrating Its Thirtieth Anniversary in Perugia, Italy
- A Letter from Scientific Committee (Italy)
- ILBM Platform Process is Growing—Part IV
- Lakes of the World: Lake Haleji (Pakistan)
- Scientific Journal of ILEC, "Lakes & Reservoirs"
- The Water Circulation Basic Act Enacted in Japan
- A Report from a Former JICA Trainee (Mongolia)
- Overview of ILEC Activities (October 2013-June 2014)
- Lake Trasimeno, Italy: The Venue of the Fifteenth World Lake Conference

Connecting Ecosystems, Connecting People: A way to preserve freshwater biodiversity.

Luigi Naselli-Flores (Italy)



The Mediterranean Sea was called “Mare Nostrum”(Our Sea) by the Old Romans because their empire was entirely embracing its basin and it was thus considered a “domestic” sea. Moreover, it represented an easy and quick way to connect and keep under control the different parts of their vast territory. Indeed, the Mediterranean has always been a water way connecting people, cultures, and nature. Due to a quite uniform climate (it is considered a biome by ecologists, i.e. the biosphere's major unit, according to the predominant vegetation), the lands surrounding it are characterized by a variety of organisms with similar adaptations to this environment. Although connecting the lands, however, the sea also separates them which are quite heterogeneous from a geographical point of view. Organisms spreading over the Mediterranean Sea can thus reach areas slightly different from each other regarding microclimatic and topographical features and give rise to new species. This is one of the reasons why the Mediterranean Sea is also a biodiversity hot-spot. As regard to freshwater organisms, their ability to disperse from one suitable habitat to another is strongly impaired by the relatively low number of these waterbodies habitats and by the distance among them. In fact, these may be considered as small islands scattered in an ocean of land. Nevertheless, biodiversity of freshwater organisms is high around the Mediterranean Sea and only partially unravelled. Among others, it certainly depends also on the ability of aquatic organisms to disperse through

different freshwater ecosystems and by the frequency and extent with which colonization events may be successful.

As a freshwater biologist, my ongoing research focuses on the mechanisms through which aquatic organisms disperse and what are environmental conditions favoring successful colonization. To do this our research group is studying temporary ponds; these ecosystems are widespread in the Mediterranean area and are characterized by an aquatic phase which alternates with a dry phase. Aquatic organisms (e.g. algae, plants, and invertebrates) inhabiting these environments have developed special adaptations to survive the dry phase, which consist in the production of “resting stages”. These are form of resistance, generally coinciding with reproductive structures (like seeds), during which the cellular activity is suspended (but the cells are still alive), allowing the aquatic organisms to overcome the dry period. These resting stages may be dispersed by wind, migrating aquatic birds and other animals drinking the water and transporting the mud containing them from one pond to another, and, in the last few millennia, by human activities. One of the main results achieved by studying these ecosystems and their biota, also by using molecular tools, is that the effectiveness of dispersal and colonization strongly depends on the number of suitable aquatic ecosystems on a given territory. The higher the density of these environments is, the higher the chance for the organisms to disperse and form new stable populations

can be. Moreover, the effectiveness of dispersal and colonization events strongly determines the local and regional biodiversity and reduces the risk of local extinction.

Mediterranean temporary ponds are affected by all the diseases common to aquatic ecosystems, eutrophication, and direct destruction being the main threat. Counteracting these threats and protecting these environments are of paramount importance to preserve the rich biodiversity in the Mediterranean region.]

The Integrated Lake Basin Management (ILBM) developed by ILEC offers a good conceptual framework to protect these environments. As the Mediterranean Sea, the Six Pillars of ILBM attempt to connect people, cultures, and nature. In addition, small water bodies should be considered as “transboundary” since their biota move from one to another irrespectively of boundary limits imposed by humans. Unfortunately, these concepts, although successfully applied in several parts of the world, are not widespread in Europe. The incoming Fifteenth World Lake Conference (WLC15) in Perugia, Italy with sessions dedicated to the ILBM and its Pillars, will hopefully open a discussion among European researchers about the effectiveness of these approaches. Moreover, the Transboundary Waters Assessment Programme (TWAP) on lakes carried out by ILEC may offer the possibility of new and more cooperative intergovernmental agreements to protect (Mediterranean) freshwater ecosystems.

ILBM Platform Process is Growing – Part IV

The Integrated Lake Basin Management (ILBM) and its Platform Process are being promoted around the world (Figure 1.). As a sequel to the articles from the previous Newsletters (No. 56, 57 and 58) which covered ILBM-based activities in Asia and East Africa, this issue introduces Lerma-Chapala-Santiago basin in Mexico.

ILBM Platform Process Evolving in Mexico

Lake Chapala is the largest natural lake in Mexico, forming part of the Lerma-Chapala-Santiago basin. The lake itself covers a surface of 1,112 km² and provides a whole set of ecosystem services, including fisheries, irrigation and water for human consumption, providing liquid to 5 million people. Back in 2006, an expert workshop was organized to define Lines of Action for the Lerma-Chapala basin (the upper portion of the system, with 5,3591.3 km²) to achieve its proper management. An institute of environmental development, Corazon de la Tierra organized that activity along with a number of government and academic institutions. Based on workshop's conclusions and understanding that long-term commitment was needed in order to solve basin's complex problems, an ILBM training workshop was held in 2008 to familiarize researchers, NGOs and government officers with the ILBM platform process. A working group was established there and the members committed to accomplish a series of specific projects of environmental education, research and public communication in a two-year period, which were almost fulfilled (90%) in the afore-mentioned time.

The ILBM spread as a practical-conceptual platform, useful to link ecosystem management with

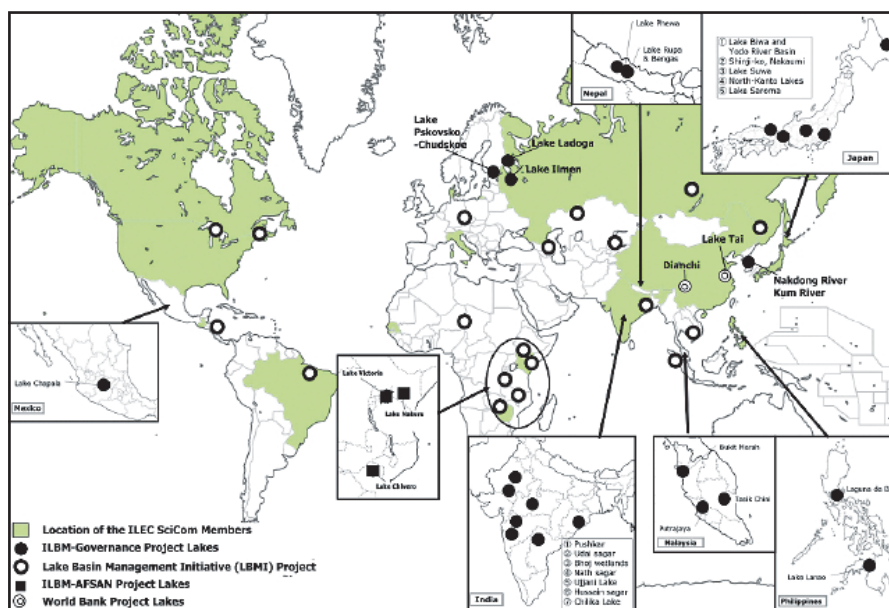


Figure 1. Locations of ILBM Case Studies

governance as a key issue from 2009 to 2012 through a series of workshops and forums in the Lerma-Chapala basin, which involved 57 private and public institutions. This experience received feedback from the ILBM-Governance project (an international effort led by ILEC) in which the Lerma-Chapala case was included as a showcase, sharing experiences with lakes of 12 countries.

Several projects were designed, funded and developed under ILBM principles, highlighting three of them: 1) A methodology to practically assess six pillars of governance in the Lerma-Chapala watershed: this was applied in three sub-basins to develop action plans to improve the low-rated governance indicators; 2) A three-years research to measure the volume of soil loss in origin areas and agricultural run-off: this generated an updated GIS, a SWAT model, a list of pesticides used in the area, a social characterization of farmers and, probably the most interesting, a Multistakeholder Platform as a strategy to face a very complex situation and implement solutions

in a collaborative way; and 3) The Lake Chapala Birds Festival: this is organized annually since 2010 to raise awareness about lake's rich biodiversity through cultural and academic activities.

Finally, after a long participative process, the Lerma-Chapala Sub-basin Network was formally created in 2012 and is currently structuring a virtual platform to improve communication and training among its members participating actively in basin-related issues, such as management research, training, education, enforcement and others in a varied group of institutions.

There is confidence and commitment to continue to apply ILBM as a powerful tool in the efforts to achieve sustainable management of Lake Chapala, an ancient lake which forms part of a multi-used watershed that provides an important share of forestry, agricultural and industrial activities of Mexico.

Lakes of the World

Lake Haleji (Sindh, Pakistan)

Rahat Jabeen*

Lake Haleji is a large freshwater lake in Sindh Province, Pakistan. It is a perennial freshwater lake with associated marshes and adjacent brackish seepage lagoons, set in a stony desert. Originally a seasonal saline lagoon, the lake was formed in the 1930s by converting the lagoon into a water storage reservoir to meet non-agricultural demand for water for Karachi. The lake is managed by two departments - the Sindh Wildlife Department and Karachi Water and Sewerage Board (KW&SB).

Lake Haleji, having a total area of 1,704 ha, was designated as Ramsar site on July 23, 1977. It is located 15km west-northwest of Thatta, and 75km east of Karachi. It was formed by bunding of a natural depression. The maximum depth is 6-8m, and water levels fluctuate with 1-1.5m. The water salinity at surface is 0.15 Practical Salinity Unit (PSU). The bunds enclosing the lake carry a road lined with trees and shrubs. Beyond the bund there is a series of brackish seepage lagoons-originally "borrow-pits" from creating the bunds. These are supplied by monsoon rains, and water discharged from the main lake by a bypass regulator. The climate is dry, sub-tropical monsoonal, with very hot summers and cool winters. The lake serves as an important reservoir for flood control.

It is a wintering site for the globally threatened pelican *Pelecanus crispus*. This lake regularly hosts between 50,000 and 100,000 birds. It is especially important for staging and passing *Anatidae* and *coot*

Fulica atra, and for breeding *Ardeidae*. In general, the area is of international importance for breeding, passage and wintering waterbirds.

The lake supports abundant aquatic vegetation, including extensive beds of *Phragmites karka*, *Typha angustata*, *Ipomoea aquatica*, *Cyperus sp.*, *Scirpus littoralis* and *Polygonum barbatum*. Submerged vegetation includes *Potamogeton pectinatus*, *P. perfoliatus*, *P. lucens*, *Vallisneria spiralis*, *Hydrilla verticillata*, *Najas minor*, *Lemna minor*, *Ceratophyllum demersum* and *Myriophyllum spicatum*. *Juncus maritimus* grows around the brackish seepage lagoons. Big trees such as *Acacia sp.*, *Ficus sp.* and *Casuarina sp.* have been planted on the bunds around the lake.

Lake Haleji is an important breeding area for waterbirds, in particular *Ardeidae*, *Nettapus coromandelius*, *Anas poecilorhyncha*, *Porphyrio porphyrio*, and *Hydrophasianus chirurgus*. Thousands of night-herons *Nycticorax nycticorax* roost in the marshes. Wintering waterfowl include *Pelecanus crispus*, *Anas penelope* and *Fulica atra*. The sanctuary is also rich in raptors and fish, and it supports a small population of marsh crocodile *Crocodylus palustris*. 232 species of birds has been recorded from the lake.

The lake has set with three islands. One of them is known as Pelican Island and another Cormorant Island. On both the islands hundreds of these birds can be seen

nesting and sunning. The Cormorants, a common sight at all wetlands, live the year round at the Haleji. On the Cormorant Island they could be seen in very large numbers resting and sunning with their very large wings spread wide and the long necks held high in the air. They live exclusively on

fish, which they chase and catch under water, being expert divers and submarine swimmers.

Marsh crocodiles were also introduced into the lake and they have made an island as their permanent residence. The island was named after them as the Crocodile Island. They subsist on fish and waterfowl in the lake.

Recreational activities include angling of fish, bird watching and lake side picnicing. The site is also important for conservation education, with its information centre with an observation tower. Proximity to Karachi affords excellent potential for conservation-based recreation and education.

The local community living around the lake directly utilizes the lake resources, i.e., the water of the lake for drinking and domestic purposes. The local villagers also do fishing at the lake for their food consumption. The bank of lake is used by local females to wash clothes. Villagers collect the reeds from the lake for many purposes like roof thatching, baskets making, broom making and small boats for fishing in the lake. Local boys collect the flowers and seeds of the lotus for selling to the visitors and at the local markets. The roots of the lotus are used as the traditional food in the interior of Sindh.

The following management issues at Lake Haleji which were identified in the Lake Haleji Management Strategy developed by Sindh Wildlife Department in 2007 include Hydrology and Water Management, Biodiversity Conservation & Management, and Community Participation & Capacity Building and Education & Awareness.

As of now the ILBM activities are not formally initiated but the work has been done yet has been addressed the six pillars of ILBM, i.e., Participation, Institutions, Policies, Technology, Information, and Finance. In the future it is recommended that a full ILBM initiative be in place for this important lake of Pakistan.





Scientific Journal of ILEC *Lakes & Reservoirs: Research and Management*

Table of Contents

Volume 18, Issue 3 (September 2013)

	Article Title	Author(s)
Featured Articles	Development and application of dissolved oxygen (DO) and biological oxygen demand (BD) model for Panshet and Ujjani Reservoirs, Maharashtra, India (pp. 217-226)	Ramasamy P. Manivanan, Jeswar S. Sinha and Chandrakant N.Kanetkar
	Long-term irreversible changes in a lake ecosystem affected by the Indian Ocean Tsunami (pp. 227-238)	Kamala K. Satpathy, Satya Panigrahi, Ajit K. Mhanty, Manoj K. Samantara, Satyanarayan Bramha and M. Selvanayagam
	Stocking wild adult Florida largemouth bass (<i>Micropterus salmoides floridanus</i>): An additional fish management tool (pp. 239-246)	Daniel E. Canfield Jr, Darren J. Pecora, Kurt W. Larson, Jesse Stephens and Mark V. Hoyer
	Does reservoir age influence reproductive tactics in opportunistic fishes? An analysis of <i>Astyanax minor</i> reproduction in water supply reservoirs of southern Brazil (pp. 247-258)	Elton C. Oliveira, Adriane E. Muelbert, Juliano P.A. Saliva, Nedra C. Ghisi and Luis F. Favaro
	Seasonal variations of phytoplankton species in Lake Victoria and the influence of iron and zinc ions on the dominant species identified during 2006-2007 studies (pp. 259-274)	Naziriwo Betty Bbosa and Wandiga Shem Oyoo
	Reservoir volumetric and sedimentation survey data: A necessary tool for evaluating historic sediment flux and appropriate mitigation response (pp. 259-274)	Jason R. McAlister, William E. Fox III, Bradford Wilcox and Raghavan Srinivasan
	Stratification, diel and seasonal energy transfer in Malilangwe Reservoir in the south-eastern lowveld of Zimbabwe (pp. 285-296)	Tatenda Dalu, Sydney Moyo, Bruce W. Clegg and Tamuka Nhwatiwa

Table of Contents

Volume 18, Issue 4 (December 2013)

	Article Title	Author(s)
Editorial	15th World Lake Conference on the Horizon (p. 297)	Walter Rast
Featured Articles	Eutrophication as a 'wicked' problem (pp. 298-316)	Jeffery A. Thornton, William R. Harding, Mark Dent, Rob C. Hart, Hebin Lin, Claudia L. Rast, Walter Rast, Sven-Olof Ryding and Thomas M. Slawski
	Spatio-temporal variations in the trophic status of Lake Naivasha, Kenya (pp.317-328)	Jane Ndungu, Denie C. M. Augustijn, Suzanne J.M.H.Hulscher, Nzula Kitaka and Jude Mathooko
	Comparative spatial metal concentration and partitioning in bottom sediments of two tropical freshwater lake basins, Kenya (pp.329-355)	Job Mwamburi
	Limnological characterization of interdune ponds of Curupu Island, Raposa - MA, Brazil (pp. 356-365)	Ana C. S. Sena, Paulo R.S. Cavalcante, Maria R.C. Silva, Ricardo Barbieri and Francisca A. Castillo
	Prediction of sediment inflows to Angereb dam reservoir using the SRH-1D sediment transport model (pp. 366-371)	Takele Zeleke, Ahmed Moustafa Moussa and Mohamed S. El-Manadely
List of Reviewers	Reviewer Summary for Lakes & Reservoirs: Research and Management (p. 372)	
Announcement	15th World Lake Conference First Announcement - Lakes: The Mirror of the Earth (pp. 373-374)	Leigh Stitz, Susan Kinnear and Larelle Fabbro

The Water Circulation Basic Act Enacted in Japan

The “Water Circulation Basic Act” aiming at preservation and circulation of water resources was unanimously approved at the Lower House plenary session on March 27, 2014. Based on this law, the government is to formulate the “Water Circulation Master Plan” which incorporates a comprehensive set of water circulation-related measures and guidelines for the government to tackle. This master plan is to be reviewed every five years.

The basic act clarified the public responsibility of water and a healthy water circulation, and has set forth the necessity of basic policies to implement comprehensive measures in managing rivers, farmlands, and facilities along with

the forests, which have the capacity of nurturing water. The law also refers to the need of advancing cooperation between the national government and local governments in managing the basin more closely and implementing legitimate and effective use of water.

In advance of this law, an Expert Panel, established by Shiga Prefecture to study the management of the Lake Biwa-Yodo River Basin, made a proposal about the prospective basin management in this region to be pursued in the years to come (October, 2010). The proposal claims that sustainable uses and conservation of the resources in a river-lake linked system like the Lake Biwa-Yodo River basin requires the effort of all individuals

living in the basin. Regardless of wherever they live, near the river or far from it, in the riparian area or non-riparian area, upstream or downstream, their collective effort is necessary for gradually integrating different views and approaches and improving basin governance.

The view of Integrated Lake Basin Management (ILBM) promoted by ILEC corresponds with the “Water Circulation Basic Act” and the “proposal” of Shiga Prefecture. It is our desire, while expecting enforcement of this law, to support the efforts taking place in every corner of the earth to realize sustainable lake basin management.

A Report from a Former JICA Trainee

Soninkhishig Nergui (Mongolia)

Dr. Soninkhishig Nergui took part in a training program titled “Environmental Education Focused on Fresh Water Environment” in FY 2000. She is currently a professor of Department of Biology, School of Science, National University of Mongolia, and reports her research activities conducted over the years.

My prime research interest is systematics and ecology of diatoms, which are one-celled photosynthesizing organisms in aquatic ecosystems and excellent indicators of environmental changes. I use diatoms to assess water quality in streams and lakes in Mongolia in relation to land use and climate changes. For example, water quality in major lakes in the western part of Mongolia has decreased notably since the mid-1980s, and we assume this is caused by sharp increase of livestock after animal privatization.

Since I attended the JICA-ILEC training course in 2000, I have come to understand the complexity of water issues and the

importance of sectoral linkage and interdisciplinary research for sustainable use of water resources. In 2005, we established Water Research Center at National University of Mongolia in order to let professors work in close cooperation with those who have interests in water issues. The Center joined the “Strengthening the Integrated Water Resources Management (IWRM) in Mongolia” project and coordinated its capacity building component. As a result, a joint team comprised of professors of the three major universities, namely, National University of Mongolia, Mongolian University of Science and Technology, and Mongolian State University of Agriculture, developed a joint master’s program on water management. The graduates are working in various organizations of the water sector, especially in the river basin organizations established in the last two years in the country.

More recently, we implemented the “Environmental Flow Assessment of Orkhon River” project. Due to mining development in the southern part of Mongolia (Gobi desert), possible water diversion projects on major rivers in the central part of Mongolia have been under discussion in the last decade. Orkhon River is a pioneering case. We assessed environmental flow of the Orkhon River successfully with support from international experts and plan to continue the assessment of other major rivers in Mongolia while encouraging the participation of students who attend the joint master’s program.



Dr. Soninkhishig Nergui



Overview of ILEC Activities (October 2013 - June 2014)

2013

October 3 Director General Hamanaka receives the JICA Recognition Award

4 Board members of the Japan Environmental Technology Association visit ILEC

24 Participation at Biwako Business Messe (Nagahama)

28-29 Poster presentation and participation in the Kyoto University Asian Core Program Symposium (Uji)

29-31 Malaysian researchers visit Heartware project cases in the Lake Biwa basin (Moriyama and Kusatsu /In Collaboration with Shiga University) **[PIC 1]**

30 Participation in North American Lake Management Society 2013 - Annual Meeting (- Nov. 3, San Diego)

November 6 Delegates from Kazan Federal University, Russia, visit ILEC

7 Delegates from Ministry of Agriculture and Irrigation, Myanmar, visit ILEC

13-14 Delegates from Hunan Province, China, visit ILEC as part of a JICA training program

20 WLC15 1st Domestic Committee Meeting (Otsu)

December 3-5 TWAP Central America Expert Group Meeting (Garadajara)

9-11 TWAP South America Expert Group Meeting (Rio de Janeiro)

17 Delegates from Vietnam National University, Hanoi, visit ILEC

19 Deputy Mayor of the Tainan City Government visits ILEC

2014

January 14-15 TWAP South Asia Expert Group Meeting (New Delhi)

25 Participation in a reed-harvesting activity (Kusatsu)

February 14-15 Participation in the International Conference on Lakes & Wetlands (Bhopal)

19-20 TWAP East Africa Expert Group Meeting (Nairobi)

March 3 Delegates from Nanjing University, China, visit ILEC

3-5 ILBM-Heartware Philippines Expert Group Meeting (San Pablo / In collaboration with Shiga University) **[PIC 2]**

6-8 TWAP East & Southeast Asia Expert Group Meeting (Quezon City) **[PIC 3]**

6 Delegates from Tainan City, Taiwan, visit ILEC

21 Participation in the 2014 World Water Day: The Water-Energy Nexus (Tokyo)

April 12-16 WLC15 Preparatory Meeting (Perugia)

12 An ILEC training program-featured pannel is exhibited at the JICA Global Plaza (- Jun. 30, Tokyo)

May 27 WLC15 2nd Domestic Committee Meeting (Otsu)

June 2 ILBM Workshop (Bogor / In collaboration with the Indonesian Institute of Sciences)

4-5 Participation in the 82nd Annual Meeting of ICOLD (Bali) **[PIC 4]**

4 An American undergraduate student from Japan Center for Michigan Universities interns at ILEC (- Jul. 23) **[PIC 5]**

16-18 TWAP West Africa Expert Group Meeting (Accra)

23-25 TWAP West Asia-East Europe Expert Group Meeting (Istanbul)

27-29 WLC15 Preparatory Meeting (Perugia)



Lake Trasimeno, Italy: The Venue of the Fifteenth World Lake Conference

The Fifteenth World Lake Conference (WLC15) of 2014 will soon commence this coming September 1-5. A twenty minute drive outside of the conference venue city of Perugia, there lies Lake Trasimeno (PIC 1 to 3). Buried in the strata surrounding the lake (PIC 4) are the signs retelling the story of the lake's formation. Formerly a sea some twenty million years ago, the area eventually dried up and over time rainwater

accumulation formed the present tectonic lake, which has a surface area of 128km² and an average depth of approx. 4m. Formerly a closed off lake, presently flood-control outflow streams have been constructed. Since there are no feeding rivers, the water forms from precipitation and melting snow and it exits the lake from evaporation. As a result of this, some salt remains and its water is slightly brackish and hosts a huge variety of fish

(PIC 5). The lake is also surrounded by a number of historical attractions, such as the remains of a battle field where the Carthaginian general Hannibal triumphed over the Roman legions in Tuoro, and a medieval fortress in Castiglione del Lago filled with beautiful frescos (PIC 6, 7). The WLC15 will offer field trips to the lake and other destinations full of such natural, historical and cultural attractions. We look forward to meeting you there!



* Please stay tuned and visit the Conference website (www.wlc15perugia.com) for the coming updates!



INTERNATIONAL LAKE ENVIRONMENT COMMITTEE FOUNDATION (ILEC)

–Secretariat–

1091 Oroshimo-cho, Kusatsu-city Shiga 520-001, JAPAN

Tel: +81-77-568-4567 / Fax: +81-77-568-4568 / E-mail: infoilec@ilec.or.jp

Website: www.ilec.or.jp / Facebook: www.facebook.com/ilec.english

*The latest issue and back issues of this newsletter are also available on our website above.