

# GLOW 8

An international conference

## Advancing the Ecosystem Health Approach: *Good Governance for Adaptation and Rehabilitation*

*March 24-26, 2015, Mangochi, Malawi*

# Program



**AQUATIC ECOSYSTEM  
HEALTH & MANAGEMENT SOCIETY**



# *Advancing the Ecosystem Health Approach: Good governance for Adaptation and Rehabilitation*

**March 24-26, 2015  
Mangochi, Malawi**

*Organized by*



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## *Welcome to beautiful Lake Malawi*

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Aquatic Ecosystem Health & Management Society established the “Great Lakes of the World (GLOW)” Working in 1996. Since then the AEHMS has launched a continuing series of international symposia in order to promote interaction and communication amongst various great lakes/large lakes researchers across the world. GLOW symposia were organized in the following locations:

- Victoria Falls, Zimbabwe
- Sligo, Ireland
- Arusha, Tanzania
- Bagayoma, Tanzania
- Addis Ababa, Ethiopia
- Nevada, USA
- Bujumbura, Burundi

The purpose of GLOW is to establish a global platform where ecosystem-based studies of structure, function and performance of large/great lake ecosystems are promoted, organized and synthesized. An integrated, multi-trophic and multi-disciplinary approach is encouraged. A majority of the great lakes/large lakes researchers, students and managers are aware of the GLOW series of symposia as well as the resulting peer-reviewed publications. So far the AEHMS has been instrumental in publishing a large number of peer-reviewed papers on Great Lakes, especially African Great Lakes. These publications include special issues of the journal AEHM as well as books (Tables 1 and 2).

This GLOW symposium in Mangochi, Malawi, is the 8th GLOW in the series, and will focus on Lake Malawi, similar to previous events on Lakes Victoria and Tanganyika. Once again it is being organized in Africa to ensure the participation of African scientists and colleagues. The Mangochi symposium could be a unique opportunity to discuss Lake Malawi, one of the deepest African Great Lakes (>700 m), with a very long retention time (750 yrs). The program has been categorized as described below:

1. Fisheries and management
2. Ecology of other large lakes
3. Panel discussion and synthesis
4. Field trip and excursion

We would like to thank members of various conference committees for their work towards the organization of this meeting, especially Dr. Martin Van der Knaap for, as always, going above and beyond in providing valuable assistance and advice. We appreciate the support of WorldFish, especially our co-chair Joseph Nagoli, and also the help of Grace Chizalema. Friday Njaya gave valuable assistance to the program and promoting the conference. Thank are due to AEHMS secretariat for the overall coordination of the GLOW symposium namely Lisa Elder, Jennifer Lorimer and Robin Rozon. We are optimistic that the GLOW VIII symposium in the beautiful surroundings of Lake Malawi will be productive, exciting and generate new momentum for the continued success of the AEHMS-GLOW Working Group and its activities.

M. Munawar

*Research Scientist: Fisheries & Oceans Canada  
President: Aquatic Ecosystem Health & Management Society  
Chief Editor: Aquatic Ecosystem Health & Management*

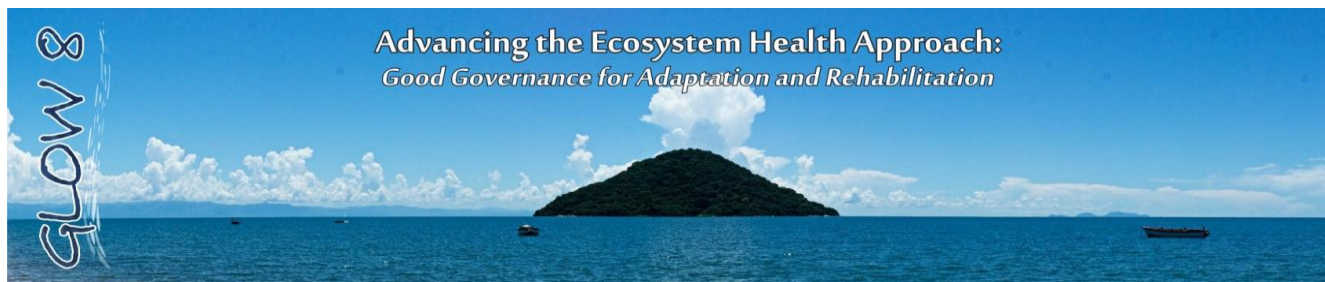


Table 1. Special issues of the Aquatic Ecosystem Health and Management (AEHMS, 2000-2013), devoted to Great Lakes.

<b>Special issues</b>	<b>Volume</b>	<b>Year</b>
Large Lakes of the World: Comparative Ecology	3(1)	2000
Ecosystem Health of Lake Baikal, Russia	3(2)	2000
Great Lakes of the World: Food Web, Fisheries, and Management	5(3)	2002
Comparing Great Lakes of the World	6(3)	2003
Coastal Wetlands of the Laurentian Great Lakes: Health, Integrity and Management	7(2)	2004
Emerging Issues in Lake Superior Research	7(4)	2004
Great Lake Victoria Fisheries: Changes, Sustainability, and Building Blocks for Management	10(4)	2007
Changing Great Lakes of the World	11(1)	2008
State of Lake Huron: Ecosystem Change, Habitat, and Management, Part I	11(2)	2008
Checking the Pulse of Lake Ontario	11(4)	2008
The State of Lake Huron: Ecosystem Change, Habitat and Management, Part II	12(1)	2009
Changing Great Lakes of the World and Rift Valley Lakes: Sustainability, Integrity & Management	13(1)	2010
Assessing Large and Great Lakes of the World	13(2)	2010
Ecology of Lake Superior	14(4)	2011
Great Lakes of the World (GLOW VI): Linking Ecosystem-Based Science to Management	16(3)	2013
GLOW VII: Protecting Great Lakes of the World: Managing Exploitation with Ecosystem-Based Science	17(1)	2014
State of Lake Vänern Ecosystem	17(4)	2014

Table 2. Books published under Ecovision World Monograph Series from 1995-2010.

<b>Books</b>	<b>Year</b>
The Lake Huron Ecosystem: Ecology, Fisheries and the Management	1995
Phytoplankton Dynamics in the North American Great Lakes, Vol. 1: Lakes Ontario, Erie and St. Clair	1996
The State of Lake Erie Ecosystem (SOLE): Past Present and Future	1999
Phytoplankton Dynamics in the North American Great Lakes, Vol. 2.: Lakes Superior, Michigan, North Channel, Georgian Bay and Lake Huron	2000
The Great Lakes of the World (GLOW): Food-web, Health & Integrity	2001
Ecology, culture and conservation of a protected area: Fathom Five National Marine Park, Canada	2001
State of Lake Ontario(SOLO): Past, Present and Future	2003
State of Lake Michigan (SOLM): Ecology, Health and Management	2005
Checking the Pulse of Lake Erie (CPOLE)	2008
State of Lake Superior (SOLS)	2009
Burning Rivers	2010
Bringing Conservation to Cities: Lessons from Building the Detroit River International Wildlife Refuge	2014



**Please note:**

All presentations and posters are the property of the presenter. Audio recordings, copying, videotaping or photography of the presentations is prohibited. Media should obtain the permission of the conference chair for use of any conference material.

We request participants to switch off mobile phones in the conference hall.

You should consider your personal name badge as your entry ticket. Please wear your badge at all times during the conference.

Liability: Neither the WorldFish, the AEHMS, nor any of the conference sponsors can be held responsible for damage, loss or theft during the conference. Please take precautions to ensure the safety of yourself and your valuables.

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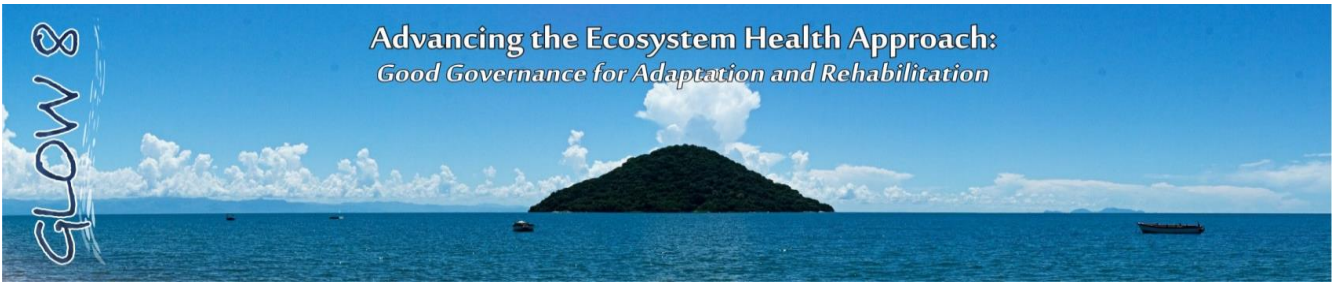
## Program

Tuesday, March 24 <sup>th</sup>			
9:00	Registration desk opens		
10:00-10:50	Conference opening <ul style="list-style-type: none"> <li>• Opening remarks by Joseph Nagoli, WorldFish</li> <li>• Welcome by the M. Munawar, President of the Aquatic Ecosystem Health &amp; Management Society (AEHMS)</li> </ul>		
10:50-11:10	Break		
11:10-11:50	K.1	<i>Keynote: Van der Knaap, M.</i>	<i>The cost of non-action in fisheries governance on Lake Victoria</i>
<b>Session 1. Fish and Fisheries African Great Lakes: Lake Malawi</b>			
11:50-12:10	S1.01	Brown, E.	Recent changes in sedimentation of northern Lake Malawi
12:10-12:30	S1.02	Donda, S.	Indigenous fisheries knowledge in fisheries management on Lake Malawi
12:30-12:50	S1.03	Brown, E.	Land-use impact on the sediment influx to Lake Malawi
12:50-2:20	Lunch		
2:20-3:00	K.2	<i>Keynote: Chimatiro, S.</i>	<i>Fish trade in Africa</i>
3:00-3:20	S1.04	Njaya, F.	Ecosystem approach to fisheries for the Southern Lake Malawi: Lessons on fisheries governance
3:20-3:40	S1.05	Donda, S.	Defragmenting resource management on the South East arm of Lake Malawi: Case of fisheries
3:40-4:00	S1.06	Hara, M.	Lessons from existing modes of governance in Malawi's small-scale fisheries
4:00-4:20	Break		
4:20-4:40	S1.07	Balarin, J.	The Malawi fish project: An integrative approach to the management of Malawi lakes
4:40-5:00	S1.08	Jamu, D.	Beyond fisheries ecosystems: A review of the evidence for climate variability and human –induced impacts on fisheries production in Malawi lakes
5:00-5:20	S1.09	Tsirizeni, M.	Assessment of effectiveness of ecological sanitation along Lake Malawi lake shore areas-a case study of Lifuwu, Salima District
5:20-5:40	S1.10	Gabagambi, N.P.	Biological and ecological effects of a <i>Ligula intestinalis</i> (LINNAEUS, 1758) infestation in the fish host <i>Engraulicypris sardella</i> (GÜTTER, 1868) from Tanzanian side of Lake Nyasa



Wednesday, March 25 <sup>th</sup>			
9:00-9:40	K.2	Keynote: Munawar, M.	<i>Exploring microbial-planktonic dynamics in the deeper strata of the Laurentian Great Lakes: Examples from Lakes Superior and Ontario</i>
<b>Session 2. African Ecosystems: Ecology, Health and Socioeconomics</b>			
9:40-10:00	S2.01	Etiegni, E.	Difficulties facing co-management: Illegal fishing in Lake Victoria (Kenya)
10:00-10:20	S2.02	Mulimbwa, N.T.	The clupeid larvae fishery and its impact on exploitable biomass on Lake Tanganyika
10:20-10:40	Break		
10:40-11:00	S2.03	Bassa, S.	Can protected areas work in artisanal fisheries of Uganda? The cases of Lake Edward, Lake George and the Kazinga Channel
11:00-11:20	S2.04	Mugisha, A.	Lake Kivu monitoring programme: Lessons learnt from 6 years of monitoring for a safe and sustainable use of gas resource
11:20-11:40	S2.05	Munawar, M.	Algal blooms in the Bay of Quinte, Lake Ontario: Structure, diversity and dynamics
11:40-12:00	S2.06	Njaya, F.	Between a rock and a hard place: The need for and challenges to implementation of Rights Based Fisheries Management in small-scale fisheries of Southern Lake Malawi
12:00-1:30	Lunch		
1:30-1:50	S2.07	Sawasawa, W.	Role of women in fish processing along Lake Malawi fishery
1:50-2:10	S2.08	Kapute, F.	Lake Malawi fish kill
2:10-2:30	S2.09	Samala, L.	Assessment of fish exports: A case study of Blantyre District, Southern Malawi
2:30-2:50	S2.10	Kapute, F.	Effect of the Liwonde National Park on fish species diversity in the Shire River, Malawi
2:50-3:10	Break		
3:10-3:30	S2.11	Mwadzaangati, G.	Factors influencing practice of floating island fishery in Lake Chilwa
3:30-3:50	S2.12	Nkalubo, W.	Temporal trends in catches and life history traits of traditional table fish species in Uganda's water bodies
3:50-4:10	S2.13	Mzengereza, K.	Apparent nutrient digestibility of plant based diets by <i>Tilapia rendalli</i> (BOULENGER, 1896)
4:10-4:30	S2.14	Nkalubo, W.	Changes in fish communities along a section of the Upper Victoria Nile, Uganda following dam construction





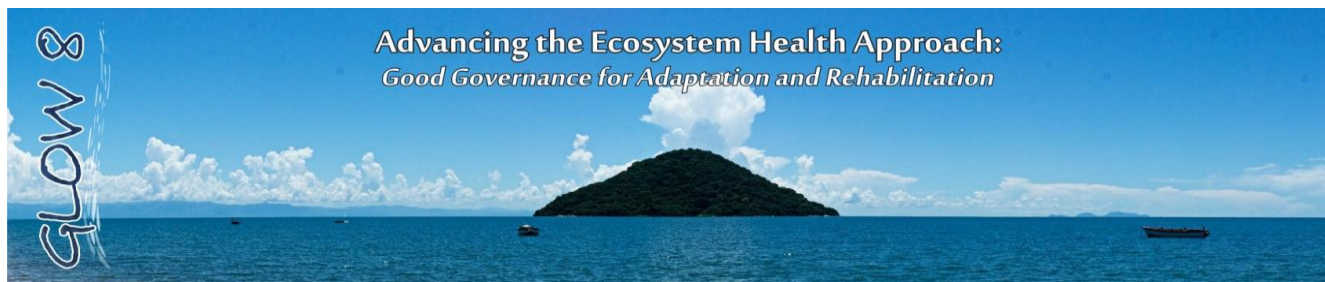
**Wednesday, March 25<sup>th</sup>**

4:30-4:50	S2.15	Van der Knaap, M.	On the status and trends in functioning, health and productivity of Large African lakes: International scientific developments versus ground-truthing
6:00-7:00	Cultural Program		
7:00-8:30	Banquet		

**Thursday, March 26<sup>th</sup>**

9:00-10:30	Panel discussion
10:30-10:45	Publication Plans
10:45	Adjournment
11:00-11:45	Meet for field excursion
11:45	Excursion

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## List of Presenters

Name	Affiliation		Country
John	Balarin	PACT Malawi	Uganda
Mr. Samuel	Bassa	National Fisheries Resources Research Institute, Jinja	United States
Prof. Erik	Brown	University of Minnesota Duluth	USA
	Sloans	WorldFish	
Dr. Steve	Donda	Department of Fisheries	Malawi
	Christine	Ministry of Agriculture, Livestock and Fisheries	Tanzania
Mr. Nestory Peter	Gabagambi	Tanzania Fisheries Research Institute (TAFIRI)	USA
Dr. Mafaniso	Hara	Institute for Poverty, Land and Agrarian Studies, University of the Western Cape	Malawi
	Daniel	Jamu	Coastal Resources Center
Dr. Fanuel	Kapute	Mzuzu University	South Africa
	Ange	Mugisha	Energy Development Corporation Ltd - REG
Dr. N'sibula T.	Mulimbwa	Center for Hydrobiological Research	Netherlands
Dr. Mohiuddin	Munawar	Department of Fisheries and Oceans	Rwanda
	George	Mwadzaangati	Canada
Mr. Kumbukani	Mzengereza	Mzuzu Unirvesity	Canada
	Friday	Njaya	Malawi
Dr. Winnie	Nkalubo	National Fisheries Resources Research Institute	Malawi
Mr. Langson	Samala	Mzuzu University	Uganda
	Wilson	Sawasawa	Malawi
	Mathews	Tsirizeni	Leadership for Environment and Development Southern and Eastern Africa (LEADSEA)
Dr. Martin	Van der Knaap	MAXILLION	Canada
			Netherlands



## ***Publication Plans***

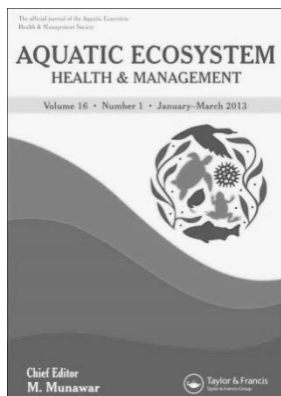
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The Publication and Production Committee of the AEHMS, chaired by Dr. M. Munawar, Chief Editor, will oversee the publication of selected manuscripts originating from the conference. The manuscripts will be considered for publication subject to peer review in a special issue of the ISI rated journal, *Aquatic Ecosystem Health and Management*, published by the AEHMS and Taylor & Francis, Philadelphia.

Please visit [www.aehms.org](http://www.aehms.org) for publication guidelines and instructions on the preparation of manuscript. Due to the large number of manuscripts expected the AEHMS has set page limit guidelines as follows: Keynote: 10; Oral & Poster: 8 printed pages including tables and figures.

Presenters are invited to submit a paper based on their presentation by the submission deadline of June 30<sup>th</sup>, 2015.

If you are interested in publishing your paper in the special issue devoted to the conference, please fill out the Publication Questionnaire at <http://conferences.aehms.org/glow8/publication-plans/>.



# Aquatic Ecosystem Health & Management

*The official journal of the Aquatic Ecosystem Health and Management Society (AEHMS).*

A peer-reviewed, primary journal devoted to enhancing our understanding of the health, integrity, structure and function of marine and freshwater ecosystems of the world.

Membership in the AEHMS includes four quarterly copies of AEHM.

Please visit <http://aehms.org/membership/> to sign-up!

## Dr. M. Munawar

Chief Editor

Fisheries & Oceans, Canada  
Centre for Inland Waters,  
867 Lakeshore Rd.,  
Burlington, Ontario, L7S 1A1,  
Canada

mohi.munawar@dfo-mpo.gc.ca

[www.aehms.org](http://www.aehms.org)

## AEHMS Executive Committee

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*Secretary:* J. Lorimer

*Treasurer:* D.F. Malley

*Members at Large:* G. Dave,

M. Van der Knaap,

J. Leach, C.K. Minns,

I.F. Munawar, E. Mills,

## Objectives

The journal focuses on integrated, multi-disciplinary, multi-trophic and sustainable practices for the management, remediation and restoration of aquatic ecosystems. It provides a forum for scientists and managers to discuss hypotheses and ideas that address ecosystem science based concepts, approaches, methods, models and technologies.

The journal promotes publication of investigations and management practices designed to protect, restore, remediate, conserve and maintain the health and integrity of aquatic ecosystems.

AEHM seeks to foster international and cross-sectorial communications of important findings amongst scientists, managers, students, citizens, business, socio-economists, municipal agencies and politicians.

## Scope

The journal publishes articles on the following themes and topics:

- Original concise manuscripts dealing with the health, integrity and performance of aquatic ecosystems
- Reviews on state of the art issues, strategies, techniques and models
- Ecosystem science based holistic treatments including physical, chemical and biological components and their interactions
- Invited essays from established scientists and experts on timely and emerging topics
- Special issues organized around unified themes, topics and ecosystems/habitats

## Themes and topics

- Adoption of integrated, ecosystemic science-based approaches including physical, chemical, biological, ecological, eco-toxicological or modelling assessments from a holistic and sustainable perspective.
- Assessment of the impacts of environmental perturbations on the health and integrity of the structure and performance of the food web.
- Linkages between lower and upper trophic levels of the food web
- Bio-monitoring, bio-assessment, and bio-remediation techniques designed for the restoration of stressed ecosystems.
- Development of concepts, procedures and technologies appropriate to evaluate the recovery of ecosystems
- Development and contribution of environmental and ecological guidelines for national and international agreements aimed at protecting ecosystem health and integrity
- Consideration of linkages of aquatic health to socio-economic stressors and environmental ethics towards conservation of aquatic resources





<b>Title of the Special Issue</b>	<b>Volume</b>	<b>Year</b>
State of Lake Vänern Ecosystem	Vol 17(4)	2014
Application of Remote Sensing for Assessing Aquatic Ecosystem Health of China	Vol 17(3)	2014
Protecting Great Lakes of the World: Managing Exploitation with Ecosystem-Based Science (GLOW VII)	Vol 17(1)	2014
Ecology of the Mighty Ganges: health, fisheries and management	Vol 16(4)	2013
Great Lakes of the World (GLOW VI): Linking Ecosystem-Based Science to Management	Vol 16(3)	2013
Celebrating the 20th Anniversary of the AEHMS: The Aquatic Ecosystem Puzzle	Vol 16(2)	2013
Ecosystem Health and Recovery of the Bay of Quinte, Lake Ontario: Part II	Vol 15(4)	2012
Tropical Coastal Seas: Health and Management	Vol 15(3)	2012
Linkages of lakes, rivers, estuaries and oceans: Asia-Pacific focus	Vol 15(2)	2012
Changing Gulf Ecosystem: Ecology, Health and Management	Vol 15(S1)	2012
Marine Environmental Change of the South China Sea	Vol 15(1)	2012
Ecology of Lake Superior	Vol 14(4)	2011
J.R. Vallentyne & R.A. Vollenweider Memorial Issue	Vol 14(2)	2011
Ecosystem Health and Recovery of the Bay of Quinte, Lake Ontario	Vol 14(1)	2011
Ecosystem Health of the Majestic River Ganges	Vol 13(4)	2010
Assessing Great and Large Lakes of the World (GLOW V, Part II)	Vol 13(2)	2010
Changing Great Lakes of the World and Rift Valley Lakes: Sustainability, Integrity & Management (GLOW V, Part I)	Vol 13(1)	2010
Ecosystem sustainability & health of threatened marine environments (ESHTME)	Vol 12(4)	2009
The State of Lake Huron: Ecosystem Change, Habitat and Management, Part II	Vol 12(1)	2009
Checking the Pulse of Lake Ontario	Vol 11(4)	2008
State of Lake Huron: Ecosystem Change, Habitat, and Management, Part I	Vol 11(2)	2008
Changing Great Lakes of the World (GLOW IV)	Vol 11(1)	2008
Great Lake Victoria Fisheries: Changes, Sustainability, and Building Blocks for Management	Vol 10(4)	2007
The State of the Gulf Ecosystem: Future and Threats	Vol 10(3)	2007
Freshwater fishes of South America: Their biodiversity, fisheries and habitat	Vol 10(2)	2007
Sediment Quality Assessment: Watershed-Sediment Management from Source to Sink	Vol 10(1)	2007
Aquatic Ecosystems of Malaysia: Health, Sustainability and Management	Vol 9(2)	2006
Aquatic Ecosystems of China: Concerns, Technologies and Management	Vol 9(1)	2006
Aquatic Ecosystem Health: Scaling from Local to Global Perspectives	Vol 8(4)	2005
The Great Himalayas: Ecology, Health and Management	Vol 8(3)	2005
Assessing Risks and Impacts of Contaminants in Sediments (Continuation of papers from SQA5, Issue 7:3, 2004)	Vol 8(1)	2005
Emerging Issues in Lake Superior Research	Vol 7(4)	2004
Assessing Risk and Impacts of Contaminants in Sediments	Vol 7(3)	2004
Coastal Wetlands of the Laurentian Great Lakes: Health, Integrity & Management	Vol 7(2)	2004
Comparing Great Lakes of the World	Vol 6(3)	2003
Barometers of Aquatic Ecosystem Health and Integrity	Vol 6(2)	2003
Freshwater Biodiversity in Australia	Vol 6(1)	2003
Great Lakes of the World: Food Web, Fisheries, and Management	Vol 5 (3)	2002
Resilience and Integrity of Aquatic Ecosystems	Vol 5 (1)	2002
Freshwater Fish Habitat, Science and Management: A Global Perspective	Vol 4 (4)	2001
Aquatic Ecosystems of Tropical and Temperate Regions: Health and Management	Vol 4 (3)	2001
State of Brazilian Aquatic Ecosystems	Vol 3 (4)	2000
Ecosystem Health of Lake Baikal, Russia	Vol 3 (2)	2000
Large Lakes of the World: Comparative Ecology	Vol 3 (1)	2000
Sediment Quality Assessment: Tools, Criteria and Strategies	Vol 2 (4)	1999
Jack Christie Memorial Essays	Vol 2 (3)	1999
Integrated Toxicology	Vol 2 (1)	1999
Mexican Waters: Ecology Health and Management	Vol 1 (3-4)	1998
Managing Aquatic Ecosystems in Southern Africa	Vol 1(2)	1998

