



**African Center for Aquatic  
Research and Education**



*Annual Report  
Year 2020*

[www.agl-acare.org](http://www.agl-acare.org)



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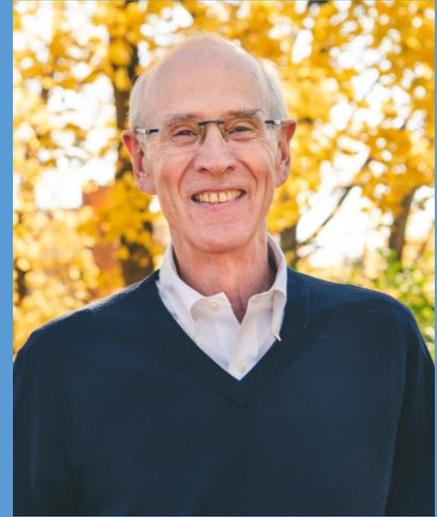
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# Message from Mr. Dave Ullrich

With the magnitude of challenges facing natural resources across the planet, the need for effective international cooperation to address and solve problems is greater than ever. The African Center for Aquatic Research and Education (ACARE) is an excellent example of people working together across national boundaries and continents to preserve resources of global significance. The seven lakes shared by ten countries in East and Southern Africa are critically important to the future well-being of the region and all of Africa. Not only are the fisheries a vital source of protein and jobs for the people in these countries, the abundant fresh water representing 25% of the surface supply in the world is increasing in value and will become even more significant in the future. The experiences of Canadians and Americans on the North American Great Lakes in managing the fisheries, water quality, and broader ecosystems can be of great value to the riparian countries of the African Great Lakes.

The Great Lakes Fishery Commission, established in 1954 by the United States and Canada, has effectively managed serious invasive species problems, coordinated fisheries management across multiple federal, state, and provincial jurisdictions, and funded critically important scientific research to advance the state of knowledge about the lakes, the ecosystems, and the fisheries. Some of this knowledge is already being shared with the African countries, thanks to the efforts of ACARE, and plans are to continue it in the future.

(cont. on page next page)



*David Ullrich has worked for over a half century on advancing environmental protection and restoration with a focus on the North American Great Lakes. Most recently, he served as Executive Director of the Great Lakes and St. Lawrence Cities Initiative from 2003 2017. The Initiative leads many efforts to accelerate the work to become a more sustainable region by integrating environmental, economic, and social activities to improve the quality of life and well being of its people.*

*Prior to assuming his current position, Mr. Ullrich served for thirty years at the U.S. Environmental Protection Agency's Great Lakes regional office in Chicago. He was a founding member and chair of the Midwest Natural Resources Group. He served as Chair of the Great Lakes Water Quality Board for the International Joint Commission from 2013 to 2020, Chair of the Great Lakes Advisory Board from 2012 to 2016, and in 2006 and 2012 was appointed by the President to the Great Lakes Fishery Commission where he served terms as Chair and Vice Chair.*

*[Read more about Dave here.](#)*

Likewise, North Americans are learning from the work being done by the African scientists.

The focus has been on science and technology to date, but in the future, ACARE can serve as a source of information about how policies and programs can help deal with the issues facing the African Great Lakes. With the number of countries and lakes involved, it will be a challenge, but taking a lake-by-lake approach, and ensuring regional collaborations are strengthened, can help make the task more manageable.

Citizen engagement is also an important element in resource management. ACARE is in a position to work with communities around the lakes to bring together the scientists, government decision-makers, technical staff, academicians, and others with the local people, especially those who depend on the lakes and the fisheries for their livelihood. Strong citizen support is essential for helping ensure a sustainable resource long into the future.

ACARE is serving as a model for how the developing and developed world can work together for the benefit of all.

Mr. Ullrich attended the 2019 African Great Lakes Stakeholder Network Workshop, held in Entebbe, Uganda. After the meeting he wrote a policy advice piece based on his experience from the North American Great Lakes and observations and participation with African Great Lakes experts. You can read it here:

[www.agl-acare.org/approaches-gl2gl](http://www.agl-acare.org/approaches-gl2gl)



# Message from the Chair of the Board and Executive Director

One of the biggest sentiments of the year 2020 was the unprecedented challenges posed by COVID-19. We are lucky as a community of scientists that we understand change is constant and adaptability is critical to progress. And, we are lucky that we have each other, as we are truly all in this together. From Manitoba to Malawi, Entebbe to Erie, our partners, our colleagues, our friends and our families have endured the challenges of 2020.

And we endured - together. The year 2020 provided us the occasion to strengthen our collaborative efforts as we embraced the available technology. Despite the limitation of travel and face-to-face dialogue, our meetings became more focused, our time used more efficiently, our partnerships energized. Our six dynamic African Great Lakes Advisory Groups (p. 8) meet regularly for vibrant discourse on the issues facing the lakes. ACARE's technical committees are busy scanning our stakeholders to determine ACARE's role in the future of science, policy, and management to sustain healthy African Great Lakes. ACARE's African Women in Science program (p. 9) is developing a comprehensive initiative for women scientists, policy makers, and activists in the African Great



Lakes region. ACARE has partnered with the International Institute for Sustainable Development, and together as IISD-ACARE has strengthened the combined impact in the region (p. 11) and are further building programs and partnerships globally to address large-lake and freshwater issues.

We write to you at the end of a seemingly endless year that posed challenges, and at the beginning of a new year with the promise of release of many unprecedented vaccines that will shift our interactions from moving images on screens to hand-shakes in a conference by late 2021. That is what science can do.

We have faced adversity this year, and have adapted well through our collective efforts, because we are all in this - together.



**Dr. Kevin Obiero**  
Chair of the Board  
Centre Director, KMFRI



**Dr. Ted Lawrence**  
Executive Director, ACARE  
Senior Policy Advisor, IISD

# PROGRAMS



# Collaboration: Advisory Groups

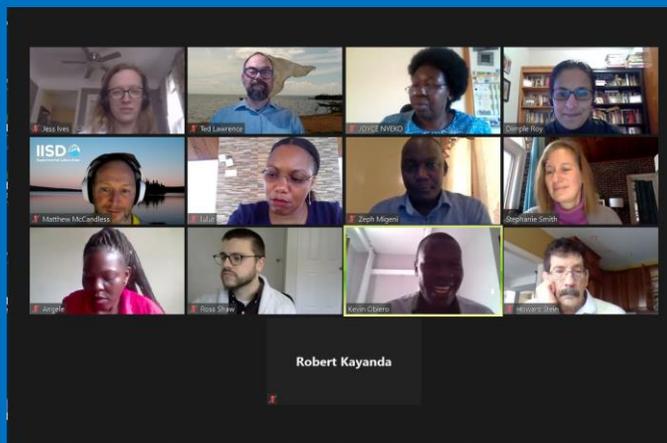
*The COVID-19 pandemic hasn't slowed us down. In fact, we have shown that we can persevere – that we can persist through virtual means. We now have six virtual advisory group meetings a month thanks to video conferencing and our new Advisory Groups Communications Facilitator.*

Programs



**Mr. Zephaniah Migeni** – Advisory Groups Communications Facilitator.

Zeph Migeni joined the ACARE team in July 2020 to help administer the virtual meetings of all advisory groups and has created an efficient communications mechanism that facilitates over 80 experts focusing on the African Great Lakes. Zeph has provided us the energy and coordination that has launched information exchange as we foresaw it from the beginning.



*Emblematic of 2020, we remind you that you are probably late for yet another virtual call*

# African Women in Science (AWIS)

*Strengthening women in science radically changes the world for the better*

During 2020, ACARE took steps to address the disenfranchisement of women in the sciences. We want, and need, to increase the participation, perspectives and insights from a major part of the population to truly solve the critical issues we face.

Knowing that robust networks are critical to professional success, ACARE developed the African Women in Science (AWIS) initiative to bring African women working on the African Great Lakes and their basins to the International Association of Great Lakes Research (IAGLR) conference in Winnipeg, MB, Canada.

Eleven highly-qualified women were part of the 2020 cohort and each submitted abstracts for the conference. IAGLR 2020, like so many others, evolved into a successful virtual event and five AWIS women ultimately presented their research.

While the IAGLR experience was valuable, ACARE staff recognize that a more robust program is

needed for early-career women scientists in the African Great Lakes region that can help address the unique barriers they face. Staff began developing a 10-month long mentorship, leadership training, and network building program for a cohort of 10-15 women. To help develop the program, ACARE hired two new staff to design and launch the program: Ms. **Angela**

**Nankabirwa**, from Uganda, as our

new AWIS Program Coordinator and **Dr. Lulu Tunu Kaaya**, from Tanzania, as our new AWIS Program Advisor (meet them both on the next page).

The new program, which will launch in March 2021, is guided by Sustainable Goal 6: Gender Equality. This program will support and guide the next generation of African women scientists who will catalyze positive change on the African Great Lakes.

***Although gender equality remains an issue, we need to understand that only inclusive science can lead to an inclusive society.***

**Tuyisenge Janvière**

**2020 AWIS Participant, Rwanda**

**To find out more, visit:**  
**[www.aql-acare.org/program-awis](http://www.aql-acare.org/program-awis)**

# African Women in Science (AWIS)

*Strengthening women in science WITH women in science*

ACARE's AWIS program is now developing with the expertise of two African women: Dr. Lulu Kaaya and Ms. Angela Nankabirwa. The program is expanding and re-launches in March, 2021.



**Dr. Lulu Tunu Kaaya** – AWIS Program Advisor.

Lulu is also a Senior Lecturer in Freshwater Ecology in the School of Aquatic Sciences and Fisheries Technology at the University of Dar es Salaam, Tanzania where she teaches limnology and watershed management. Additionally, she is the Director of Internationalization, Convocation and Advancement at the University of Dar es Salaam.

[Lulu's Bio](#)



**Ms. Angela Nankabirwa** – AWIS Program Coordinator

Angela is a Research Scientist at the Ugandan National Fisheries Resources Research Institute focusing on the role of algae in fish production; an ambassador of the Oceans and Lakes program (Belgium) in Uganda; and is tasked with strengthening the network of young Ugandan scientists passionate about growing their career in aquatic ecology offered by the program.

[Angela's Bio](#)



# HIGHLIGHTS 2020

**ACARE is carefully crafting approaches to solving the biggest challenges facing large lakes, especially in Africa.**

**Here are some highlights from 2020:**

- A. The IISD-ACARE Relationship – p. 14
- B. ACARE recognized as a top 100 Water Changemaker – p. 15
- C. Published Article Guiding ACARE – p. 16
- D. Kenya/U.S. freshwater algal field study course – p. 17
- E. Annual Meeting 2020 – p. 18



# IISD-ACARE

## Scientists from Two Continents Work Together to Improve the Health of the African Great Lakes



### Highlights

On September 1, 2020, the International Institute for Sustainable Development (IISD) and ACARE joined forces to strengthen the global large-lakes community.

IISD-ACARE combines the legal and policy expertise of IISD's vast expert staff with ACARE's newly created African network of large-lakes experts and scientists in Burundi, Democratic Republic of Congo, Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Tanzania, Uganda, and Zambia.

[www.agl-acare.org/iisd-acare](http://www.agl-acare.org/iisd-acare)

## Noted Water Changemaker

**In 2020 ACARE was one of 78 semi-finalists out of over 350 entrants.**



Global Water Partnership launched the Water Changemaker Awards to make visible the teams and organizations who shape water decisions that build climate resilience.

Recognized organizations have involved changing mindsets from inertia to action; speaking truth to power; finding new ways of working; building new coalitions; and mobilizing others to collaborate.

You can see ACARE's story here, but in short, we are celebrating our team, our partners, and you who encourage us and provide support in a variety of ways:

[www.gwp.org/en/waterchangers/change-stories/565311/](http://www.gwp.org/en/waterchangers/change-stories/565311/)

We congratulate the other Water Changemakers, especially the finalists!

# ACARE Publication

In the October 2020 issue of the Journal of Great Lakes Research, members of the ACARE community wrote a commentary titled:

## Advancing African's Great Lakes Research and Academic Potential: Answering the call for harmonized, long-term, collaborative networks and partnerships.

The commentary provides the background for the development of ACARE's collaborative network of Advisory Groups and urges stronger support for such endeavors.

Journal of Great Lakes Research Volume 46, Issue 5, October 2020, Pages 1240-1250

Contents lists available at ScienceDirect

 **Journal of Great Lakes Research** 

journal homepage: [www.elsevier.com/locate/jglr](http://www.elsevier.com/locate/jglr)

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Commentary

### Advancing Africa's great lakes research and academic potential: Answering the call for harmonized, long-term, collaborative networks and partnerships

Kevin Obiero<sup>a,b,\*</sup>, Ted Lawrence<sup>c</sup>, Jessica Ives<sup>c</sup>, Stephanie Smith<sup>c</sup>, Friday Njaya<sup>d</sup>, Robert Kayanda<sup>e</sup>, Herwig Waidbacher<sup>b</sup>, Dan Olago<sup>f</sup>, R.E. Hecky<sup>g</sup>

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<sup>b</sup>University of Natural Resources and Life Sciences, Department of Water, Atmosphere and Environment, 1180 Vienna, Austria  
<sup>c</sup>African Center for Aquatic Research and Education, 200 Commonwealth Blvd, Suite 100, Ann Arbor, MI, USA  
<sup>d</sup>Department of Fisheries, P.O. Box 558, Lilongwe, Malawi  
<sup>e</sup>Lake Victoria Fisheries Organization, P.O. Box 1625, Elizabeth Road, Jinja, Uganda  
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<sup>g</sup>Large Lakes Observatory, University of Minnesota, Duluth MN, 55812, USA

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ARTICLE INFO	ABSTRACT
<p><b>Article history:</b> Received 3 April 2019 Accepted 3 January 2020 Available online xxx Handling editor: Christian Albrecht</p> <p><b>Keywords:</b> African Great Lakes Collaborative networks Transboundary lake advisory groups, education Research partnerships</p>	<p>The African Great Lakes (AGL) have rich fisheries and are renowned "biodiversity hotspots". Consequently the AGL and the ecosystem services they provide, underpin the welfare and livelihoods of over 50 million people across 10 countries. Despite the recognized importance of the AGL, these vital ecosystems and their livelihood support systems are threatened by numerous anthropogenic stressors at local, regional, and global scales. Past and continued efforts to address critical challenges on these lakes are often short-term, parochial, disparate, and uncoordinated resulting in a lack of comprehensive and comparable scientific data and inadequate resources to influence evidence-based policy. Over the past two decades, several international workshops, conferences and scientific publications have identified the need for collaboration, knowledge sharing, and harmonization of research and management as key elements to enhance conservation efforts in the AGL. In this commentary, we introduce the African Center for Aquatic Research and Education (ACARE), which aims to strengthen research and provide the scientific evidence needed to make informed decisions related to sustainable fisheries and aquatic resource management in the AGL. To do this, ACARE will administer a highly collaborative network of experts with three long-term goals: (1) strengthen global and regional research partnerships; (2) establish transboundary and inter-jurisdictional lake advisory groups; and (3) build capacity of freshwater scientists through experiential education and public engagement. © 2020 International Association for Great Lakes Research. Published by Elsevier B.V. All rights reserved.</p>

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**Introduction**

The African Great Lakes (AGL) ecosystems have a combined catchment area spanning over 850,000 km<sup>2</sup> across seven major lake basins, namely: Lakes Albert, Edward, Kivu, Malawi/Nyasa/Niassa, Tanganyika, Turkana, and Victoria in East and Central Africa (Cowx and Ogutu-Owhayo, 2019). These lakes host invaluable resources at local, regional, and global scales (Daley, 2003). The lakes include the world's largest permanent desert and alkaline lake (Turkana), and the deepest and second oldest freshwater lake on the planet (Tanganyika; Table 1). Three of these lakes (Victoria, Tanganyika, and Malawi) together hold one-quarter of the Earth's total surface freshwater supply (Pisnier et al., 2018). The lakes form headwaters to the three longest rivers of Africa—the Nile, the Congo, and the Zambezi—whose basins support over 300 million people with food, water, transport, energy, and secure livelihoods (UNEP, 2010).

The AGL are known for their rich fisheries and as "biodiversity hotspots" with spectacular endemic fish faunas (Lowe-McConnell, 2009). A comparison of the collective diversity of fishes in the five most species-rich AGL (~1800 species, ~95% endemic) with that of the five North American Great Lakes (176 species, 3% endemic) highlights the species-level richness (Hubbs et al., 2004). This takes into consideration the combined surface area of

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Obiero et al., 2020. Advancing Africa's Great Lakes research and academic potential: Answering the call for harmonized, long-term, collaborative networks and partnerships. Journal of Great Lakes Research, Volume 46, Issue 5, 2020, Pages 1240-1250.

# Collaboration Advances Studies on Harmful Algal Blooms

Collaboration. Collaboration. Collaboration. No one organization or entity is going to solve the problems we face on our largest lakes.

Five organizations have developed and initiated a National Science Foundation-International Research Experience for Students-funded program. This is a cross-cultural project aimed at providing U.S. and Kenyan students the opportunity to gain research experience. The project focuses on large lake-comparison to study harmful algal blooms on Lake Victoria, in Kenyan waters and other large lakes, specifically, Lake Erie.



Bowling Green State University (Lead, Ohio, USA), Kisii University (Kenya), Technical University of Kenya, the Kenya Marine Fisheries Research Institute, and ACARE.

[www.agl-acare.org/bgsu-habs](http://www.agl-acare.org/bgsu-habs)

# Annual Meeting 2020

## Building the Foundation for Long-term, Scientific Inquiry and Networks

At the heart of ACARE is the process of getting global experts together. Meetings and conferences are a part of the scientific process, and can facilitate networking, idea sharing, information exchange, and harmonization of research and management.

ACARE's 2020 Virtual Annual, held on December 10<sup>th</sup>, was a great success.

Speakers from each of the African Great Lakes advisory groups updated their lake-specific issues, progress, and partnerships.

The agenda, participants, recordings of the meeting, and presentations can all be found here:

[www.agl-acare.org/2020annualmeeting](http://www.agl-acare.org/2020annualmeeting)



A photo of an in-person meeting in less pandemicky times.

# ACARE's 2020 By The Numbers

## Communications – expanded!

Estimated video conferencing meeting minutes from January to July, 2020

~320



Estimated video conferencing meeting minutes from August-December, 2020\*



## Social media exposure – increased!

~120



Facebook “likes” at the beginning of 2020



6659



And, at the end of 2020

Countries represented in social media exposure

45

\*These numbers are estimates, largely based on the feeling one has from being stuck at home for 10 months.

Numbers # Numbers # Numbers #

## We strengthen the global scientific network so you can strengthen your science

### ACARE Secretariat:

- Ben Flavin, Legal Counsel
- Jess Ives, Director of Operations
- Lulu Tunu Kaaya, African Women in Science Advisor
- Ted Lawrence, Executive Director
- Zephaniah Migeni, Advisory Groups Communications Facilitator
- Angela Nankabirwa, African Women in Science Coordinator
- Pierre-Denis Plisnier, Monitoring Programme Coordinator
- Dimple Roy, IISD-ACARE Liaison and Advisor
- Ross Shaw, Fundraising Associate & Administrative Assistant
- Stephanie Smith, Strategic Advisor

### ACARE Board of Directors:

- **Ken Irvine**, Professor of Aquatic Ecosystems, IHE-Delft, The Netherlands
- **Emmanuel Kaunda**, Director, World Bank Africa Centre of Excellence in Aquaculture and Fisheries, Malawi
- **Robert Kayanda**, Director, Fisheries Resource Monitoring and Research, Lake Victoria Fisheries Organization, Jinja, Uganda
- **Matt McCandless**, Executive Director, International Institute for Sustainable Development-Experimental Lakes Area, Canada
- **Joyce Ikwaput Nyeko**, Acting Director, Ministry of Agriculture, Animal Industry and Fisheries, Uganda
- **Kevin O. Obiero**, (Board Chair), Centre Director, Kenya Marine and Fisheries Research Institute, Sagana, Kenya
- **Howard Stein**, Professor School of Public Health & Department of Afroamerican and African Studies, University of Michigan, Ann Arbor, Michigan, USA

## Budget 2020

<u>REVENUES</u>	
Government Grants (State Dept)	\$30,000.00
Unrestricted grants and contributions (includes in-kind office supplies and rental, and 10% salary contribution)	\$26,000.00
Restricted grants	\$58,915.00
In-kind staff salary/time	\$50,000.00
Misc. revenue	\$0.00
<b>Total revenues</b>	<b>\$164,915.00</b>
<u>EXPENSES</u>	
<i>Personnel</i>	
Salaries and benefits (T. Lawrence, 50% time until Sept 30; includes 10% in-kind contribution)	\$45,000.00
In-kind staff time (3 part time positions)	\$50,000.00
<b>Total personnel</b>	<b>\$95,000.00</b>
<i>Administrative</i>	
Accounting (taxes)	\$1,900.00
Office supplies/internet (in-kind)	\$1,000.00
Rent/utilities (in-kind)	\$10,000.00
<b>Total administrative</b>	<b>\$12,900.00</b>
<i>Programs</i>	
African Women in Science	\$33,915.00
Advisory Groups	\$25,000.00
<b>Total events</b>	<b>\$58,915.00</b>
<b>TOTAL EXPENSES</b>	<b>\$166,815.00</b>
<i>Revenue over (under) expenses</i>	<b>(\$1,900.00)</b>

[www.agl-acare.org](http://www.agl-acare.org)



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ACARE 2020



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