April 2015 Volume 1 Issue 3

GLOBAL WATER PATHOGEN PROJECT

To restore and protect water safety

THE GOAL OF THE GLOBAL WATER PATHOGEN PROJECT...

is to update the original book Sanitation and Disease Health Aspects of Excreta and Wastewater Management with an online, open access integration platform for scientific knowledge on pathogens in water.

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Virus Team

Authors have begun uploading their content to the website, via the book authoring tool. Summaries of their respective chapters will be available for viewing with in the coming months.

Indicator and Microbial Source Tracking Team

The team is preparing for their workshop April 13 - 14, 2015 in Utrecht, Netherlands. KWR Watercycle Research Institute will host the Indicator and Microbial Source Tracking team, and provide a seminar with the Utrecht water utility on April 15, 2015.

AgroKnow

The migration to the new platform went off without a hitch. Our data management colleagues are now working on a file sharing tool for all authors to use on the website.

Global Water Pathogen Network

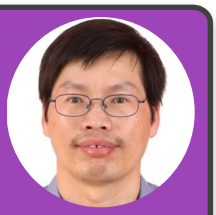
With the new addition of the Protists Team to the Global Water Pathogen Network, the number of authors has increased to 50⁺ strong. Monitoring the growth of the network on the map not only shows the global nature of the project, but also illustrates gaps in representation. While the GWPP is focused on creating an online open-access resource with a focus on pathogens, key indicators, source tracking markers, and pathogen risks from excreta, there is also significant effort to build a network of researchers, scientists, engineers, who are graduate students, professors, consultants, and postdoctoral associates from all areas of the world.

This issue of the newsletter highlights four researchers from both the Virus team (Walter Betancourt, PhD) and the Indicator and Microbial Source Tracking Team (Asja Korajkic, PhD, Guang-Guo Ying, PhD, Sihem Jebri, MS) in an attempt to present the diverse range of research, expertise, and career levels within the network.

Asja Korajkic, PhD
Post Doctoral Researcher
US Environmental Protection Agency
Cincinnati, Ohio, United States

Asja Korajkic, PhD, is a Post Doctoral Researcher at the United States Environmental Protection Agency in Cincinnati, OH, where her research focuses on the study of the fate and transport of indicator bacteria and bacteriophage in water. These non-pathogenic microbes, which indicate the potential presence of pathogens, can provide data that are "good for Quantitative Microbial Risk Assessment (QMRA), and various models and predictions to gauge what will happen to the organisms" in the environment. Her research team uses a submersible aquatic mesocosm to perform in-situ studies to determine the change in the indicator organism concentrations over a period of time. The team explores factors such as sunlight, indigenous microbiota, fecal source, water type (fresh, marine), and their effect on the decay of source tracking organisms.

Regarding her participating in the GWPP, Dr. Korajkic expressed the importance of global interactions: "Global collaborations may open our eyes to practical problems, and other issues occurring around the world. The interactions may facilitate a change of perspective and an understanding of practicality of water research in different global areas."



Guang-Guo Ying, PhD
Professor
CAS Centre for PRD Environmental Pollution and Control Research
Chinese Academy of Sciences
Guangzhou, China

Guang-Guo Ying's research focuses on the management of chemicals in river basins, antibiotic resistant bacteria and resistance genes in wastewaters and receiving environments, and microbial roles in the wastewater treatment processes.

The most challenging part of his research is "how to make my research useful to regulatory bodies and environmental managers. Since I am working in environmental science and technology field, I always hope what I obtained from my research can be applied to solve environmental pollution problems."

Regarding the global partnership/collaboration on research, he also believes that developing countries face various environmental pollution challenges. "More joint research programs should be developed to support researchers in those countries to build research and management capacity. More funding from governments and private foundations is also needed to expand these types of programs, develop research partnerships, and engage the people there."

Sihem Jebri, M.S.
Doctoral Candidate
Center National des Sciences et Technologies Nuclèaires
Tunis, Tunisia

As a doctoral student, Ms. Jebri balances her time between working as French language instructor for children aged 10-12 in Tunis, and studying the occurrence of enteroviruses in wastewater treatment plants (WWTP) in northern Tunisia. For the current protocol, there are tests performed for E.coli, salmonella, but no tests to determine the presence of viruses in the effluent. Often times these same waters are used as source water for the agricultural lands near the WWTP. With funding from both the Spanish and Tunis government, Ms Jebri was able to test the WWTP effluent for viruses and found "interesting levels and concentrations of viruses." This was the first study of its kind to research WWTP effluent water in northern Africa for levels of indicator bacteriophages.

Ms Jebri became involved in the GWPP through the invitation from Dr Juan Jofre, from the University of Barcelona. She currently has no rigid expectations for working with the project, but is keenly interested in participating in the workshop this month in Utrecht, meeting the other authors on Indicator and Microbial Source Tracking team, and learning how to use for the book authoring tool to transfer her written content to the website.

Walter Betancourt, PhD
Research Scientist
Venezuelan Institute for Scientific Research
Miranda, Venezuela

A Fulbright Scholar, Dr Betancourt's research resumè includes methods of detection, of waterborne pathogens such as *Cryptosporidum* and *Giardia*, and application of library-dependent and culture-independent fecal source tracking methods. His current research focuses on microbial pathogens in the environment, specifically the detection of human viruses in marine environments and reclaimed effluents used for indirect potable and non-potable reuse purposes. He serves as the PI and thesis advisor for a project involving the environmental surveillance of polioviruses and non-polio enteroviruses in sewage and sewage polluted waters; this research is part of the Global Polio Eradication Initiative to eradicate polio worldwide. In Venezuela, he has been involved on an awareness campaign to help educate local communities on water, sanitation and hygiene practices at the household level. Dr Betancourt credits the mentorship of Joan Rose, PhD (Michigan State University) and Chuck Gerba (University of Arizona) in preparing him for a lifelong commitment to education and research excellence on issues addressing microbial water quality worldwide.

PROTISTS TEAM

Executive Editors: Ron Fayer, PhD and Walt Jakubowski

In the nascent stages of the Global Water Pathogen Project (GWPP), executive editors Ron Fayer, PhD and Walt Jakubowski discussed the opportunity to change the name of the Protozoa section to the Protist section because organisms now include Fungi and Chromista as well as Protozoa. In the original Feachem book, the section on Protozoa was published exclusively identifying *Giardia*, *Blastocystis*, and *Entamoeba histolytica*. In addition to these three previous organisms, the section now includes *Balantidium coli*, *Cyclospara cayetanensis*, *Cryptosporidium parvum* and spp., Microsporidia, and *Taxoplasma gondii,* a total of eight chapters for the Protist section. Since the publication of the book in 1983, there have been significant contributions to the water research field, and discoveries that led to advancements in detection, classification, treatment, and modeling of protists that will be addressed in the new chapters.

During the month of March, the Protists Team convened for the inaugural group meeting over video conference. The goal of this introductory meeting was to present the GWPP to the team, reiterate the purpose of the GWPP, discuss potential collaborations with secondary authors of the respective chapters, and agree on the Protists chapters completion schedule. With the authors having expertise in topics ranging from specific intestinal protists to parasitology, wastewater treatment, health risks, molecular epidemiology, zoonoses, and immunoparasitology, their contributions will enable the GWPP to "publish and disseminate a state of the art reference work on water-related disease risks and interventions measures."

The Protist lead authors can now begin to invite secondary authors to their teams and focus on their respective chapter outlines. The Protists section timeline for completion will follow a similar format as the Virus Team and Indicator Microbial Source Tracking Team: determining the outline and chapter highlights, submission of content by the authors, review and editing by the executive authors, and finally producing 8 state-of-the-art chapters.

Meet the Protists Team

Layla Ben Ayed
Tunisia

Kateřina Jirků-Pomajbíková
Czech Republic

Yaoyu Feng
China

Lilian Bahia Oliveira
Brazil

Rune Stensvold
Norway

Rachel Chalmers
United Kingdom

Simone Cacciò
Italy

Leonor Chacín-Bonilla
Venezuela

Ron Fayer
USA

Walt Jakubowski
USA

Freshwater withdrawals for agriculture exceed 90% in many countries:

Cambodia 94%, Pakistan 94%, Vietnam 95%, Madagascar 97%, Iran 92%, Ecuador 92%

Source: data.worldbank.org

For additional information, contact:

Kyana Young, PhD
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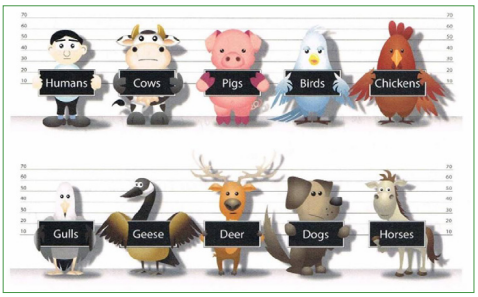
BTO Seminar

The value of microbial source tracking for water safety management

Date april 15, 2015
Location KWR, Groningenhaven 7, 3433 PE Nieuwegein

E. coli in drinking water? Faecally contaminated source water? A bathing beach with high *E. coli* counts? Cross connections between domestic and stormwater sewers? Effective management of the safety of water systems would be greatly facilitated by information about the source of the fecal contamination. It helps to understand where the contamination is coming from. It helps to direct control measures to the right contamination sources. It helps to evaluate the health risk associated with the contamination. New developments in genomics make it possible to discriminate different contamination sources. In this seminar world-leading experts will present the state-of-science and give examples on how Microbial Source Tracking can help effective water safety management of drinking water, beaches, river basins and other water systems.



The Global Waterborne Pathogens Project (www.waterpathogens.org) is a large international enterprise to collate the global knowledge about waterborne pathogens in a reference work and online, open access database and knowledge platform. The project is directed by UNESCO and Michigan State University.

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UPCOMING CONFERENCES

7th World Water Forum
April 12 - 17, 2015
Republic of Korea
www.worldwatercouncil.com

3rd Annual International Forum on Water
July 13 - 16, 2015
Athens, Greece
www.atiner.gr/water.htm

World Water Week
August 22 - 28, 2015
Stockholm, Sweden
www.worldwaterweek.org

World Water Congress XV
May 25 - 29, 2015
Ediburgh, Scotland
www.worldwatercongress.com

2015 international Conference on Water Resource and Environment
July 25 - 27, 2015
Beijing, China
www.wreconf.org

18th International Symposium on Health Related Water Microbiology
September 13 - 19, 2015
Lisbon, Portugal
watermirco2015.org