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“Promoting the professional and scientific interests of members to safeguard the public interest in the application of chemical sciences in water-related industries.”

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34 % increase in membership!!!

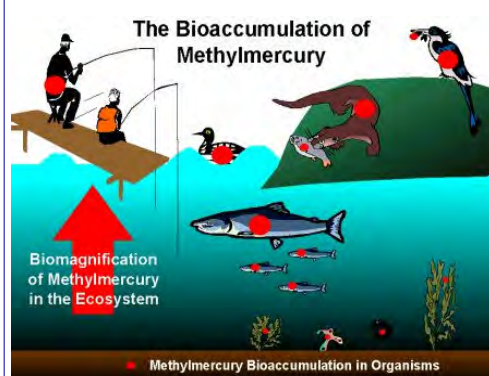
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Water regulation briefs

The Minamata Convention

Helen Keenan

The United Nations Environment Programme (UNEP) negotiations are finally complete and the text for a new global legally binding instrument on mercury was agreed on January 19th 2013 in Geneva, Switzerland. Mercury pollution is an emotive issue. The tragic incident in Minamata Bay, Japan, which has given its name to the Convention, was the result of continued direct chemical discharge over decades resulting in levels of methyl-mercury in fish which were high enough to cause drastic neurological damage to developing children. Although much mercury pollution is associated with developing countries, there are lakes in Sweden and North America where the mercury content of the fish is high enough to warrant them unsafe for consumption by women who are pregnant or breast feeding. Mercury may not be having drastic effects on single individuals in the western world but, according to the US EPA and the WHO, it is having a small but statistically significant effect on us all.



Inorganic mercury discharged directly to water courses or adsorbed from pollutants in air are of particular concern as they can be transformed to far more toxic organic mercury forms such as methyl mercury, these organic forms may bioaccumulate and biomagnify through the food chain. All top predators including humans have the greatest risk of adverse physiological effects.

The Minamata Convention deals with all uses of mercury - from products such as light switches, batteries and dental amalgam, to mercury used for the production of gold by small-scale gold miners. It also aims to reduce emissions from non-intentional sources of mercury such as coal combustion. Emissions from this sector are growing as populations grow along with their associated energy demands. Unfortunately pollution does not respect boundaries hence the need for global action.

Therefore with the launch of the treaty there is much excitement that the 11th International Conference on Mercury as a Global Pollutant (11th ICMGP www.mercury2013.com) is to be held here in the UK in Edinburgh July 28th – August 2nd. The Water Science Forum is delighted to support this event with awards of £500, for the best student oral presentation, £300 for best student poster and £200 for runner up student poster. Look out in future newsletters for the happy winners receiving their cheques!

Water Droplets:

“Approximately 634 gallons of water go into the production of one hamburger ”

Mentoring meeting

Mr Kevin Prior Chair of WSF travelled to Strathclyde University for a mentoring meeting with Dr Helen Keenan (Vice –Chair) several future meetings are also being organised so that Helen can hit the ground running when it is her turn to take the helm!!



Helen said afterwards *“This was an extremely useful exercise for me, Kevin was able to put all WSF activities into context and focused on how these fit with the Forum’s aims and objectives which were updated recently. He has been an active member for so long that he was able to give me the background to some of the recent changes and developments which greatly improved my understanding of the whole ethos of WSF. We also managed to fit in a nice working lunch in Glasgow’s Merchant City so not a bad mornings work, I am looking forward to our next meeting and already feel less terrified about taking the chair!!”*

WSF Bursaries: Past and present recipients

We take a look at past and present WSF bursary recipients and ask them how this support has helped their career

2005 Travel Grant Bursary: Rita Henderson

In 2005, I was awarded a travel bursary from the RSC to present my research at the 8th International Water Association (IWA) Particle Separation specialist group conference at Seoul, Korea, closely followed by the 3rd IWA Leading Edge Conference on Water and Wastewater Treatment Technologies in Sapporo, Japan; a daunting but exciting experience for me, a PhD student just entering their second year of research at Cranfield University. This international trip contributed to the launch of my research career in water engineering and now, 8 years on, I have been appointed as Senior Lecturer in the School of Chemical Engineering, The University of New South Wales, Australia. This position has stemmed from my initial post-doc at the UNSW Water Research Centre back in 2007, where I worked with a team led by Dr Stuart Khan, investigating fluorescence -based techniques for monitoring recycled water systems in partnership with eight Australian water utilities. In 2009, I received an Australian Research Council (ARC) Post-Doctoral (Industry) Fellowship as part of an ARC Linkage grant, which enabled me to undertake my own research. I now lead a team investigating treatment and monitoring technologies that will improve our ability to treat and supply water that has been impacted by organic matter and algae. As an Early Career Researcher, I have been fortunate to receive excellent mentorship over the last few years, helping me make the most of opportunities that have presented themselves to me. Based on my experiences, I would thoroughly recommend that young researchers take advantage of the WSF travel and Alan Tetlow bursaries; they can certainly assist in forming a rewarding water research career.



Rita Henderson, PhD, MSc, MChem, MRSC

RSC WSF Student member, 2004-2007

RSC WSF Corresponding member, 2007 to date

2010 IWA Young Water Professional Award holder

2012 AIPS NSW Young Tall Poppy Science Award holder

2012 Alan Tetlow Memorial Bursary: Helen Cope

Phosphorus is vital for life yet a limited resource. It is vital for food supply yet a pollutant of the environment. Throughout its chain, therefore, from mining to farming to food supply and waste water, phosphorus demands effective management both globally and locally. In March 2012, this was the central theme of the 3rd Sustainable Phosphorus Summit held in Sydney, Australia. With the generous help of the WSF Alan Tetlow Memorial Bursary I was able to participate in this conference, meeting key figures in the field of phosphorus sustainability and becoming part of a network of postgraduate students conducting research on this subject. Ultimately this has enabled me to continue my PhD work (using new approaches to advance understanding of biological phosphorus removal from waste waters) with greater insight and as part of a wider research community. I am extremely grateful to the WSF Committee for enabling me to take this opportunity to broaden my experience and enhance the quality of my research work.



New WSF committee member profile: Gillian Williamson

Gillian has worked in Northern Ireland Water (NIW), Analytical Services for 24 years, being based within the clean water chemistry section for 12 years covering the chemical analysis within the laboratory and process control work at water treatment works, firstly as an analyst and then as Laboratory Manager. She then moved to the wastewater chemistry section and was responsible for all wastewater and trade effluent chemical analysis for Northern Ireland. Promotion to the role of Analytical Services manager followed, having accountability for NIW’s two laboratory’s based in Belfast and Londonderry. She is a member of the Institute of Water, and was awarded Chartered Environmentalist status. Furthermore, Gillian is a RSC Chartered Chemist and Chartered Scientist. She has also worked as a mentor with a number of the chemistry staff within the laboratories of NIW promoting the benefits of Chartership/Registered Scientist and acting as their mentor. On acceptance to the committee Gillian said *“I am keen to represent the whole of the island of Ireland. I am honoured and delighted to accept this role and will work diligently to ensure I justify the confidence placed in me to promote the aims, objectives and core values of the WSF.”*

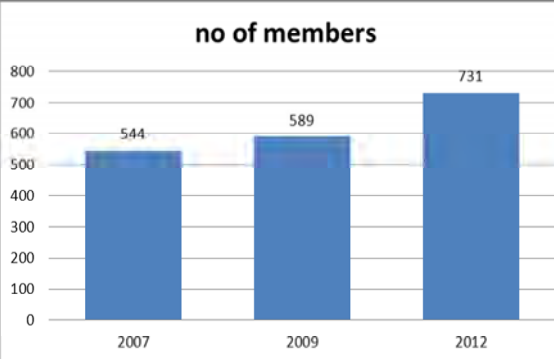
34 % increase in membership!!!

Kevin Prior

Volume 14 Issue 1

There has been a 34 % rise in membership of WSF over the last 5 years bringing the total membership to 731. This has led the committee to start a review of the activities and communications strategies for WSF.

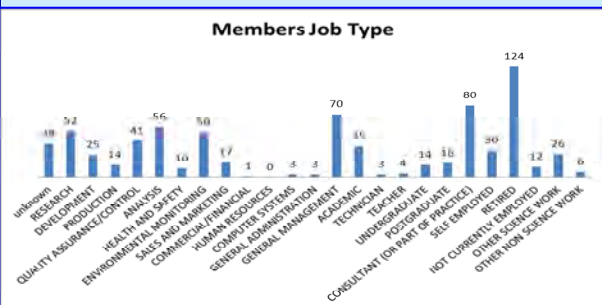
Members are engaged in a wide range of job and organisational types ranging from self employed consultants through to senior government scientists and advisors. Unsurprisingly the biggest proportion of WSF members with the “water industry” although this does not necessarily mean a water or sewerage undertaker. Members typically join at an early stage in their career and appear to remain members until they leave the water industry and its related activities.



Who are members of WSF?

Over 63% of members classify themselves as working in industry or commerce. The biggest single sector of members’ employment is the water industry (25%) The next largest area of employment is universities (11%) followed by environmental products and services (9%). 16% of members describe themselves as retired.

The Electricity Generation sector and Universities showed the largest increase in membership. The Nuclear Industry also showed a big percentage increase, indicating the importance of water quality in the power generation sector.



Job Type: The top three job types are: consultants (11%) general management (10%) and analysis (8%) environmental monitoring (10%). There is a long tail with small numbers of members in a wide range of job types. The major changes were an increase in retired members plus major increases in the members classifying themselves as analysts, researchers, and academics.

The new Registered Scientist and Registered Scientific Technician registers attracted an increase in the number of analysts in to membership. These new registers assist members achieve recognition as “competent persons” under the relevant U.K. drinking water regulations.

Age of Membership: 14% of members are classed as young i.e. under 35. Over 40% of the current membership joined while less than 25. Some 19% joined after the age of 35 perhaps reflecting a mid-career change or returning to active employment after a career break.



Location of Members: 89% of members are UK based. The largest number of members outside the U.K. is unsurprisingly Ireland (16 members) considering the island of Ireland there are 32 members (16 Ireland +16 NI). This is followed by USA, Australia, and New Zealand. In 2012 WSF members are present in a total of 30 different countries.

Forthcoming WSF

events in 2013:

Radiological Protection in the UK

4th July

International conference on Mercury as a Global Pollutant

28th July-2nd August (see advert below)

Come to Edinburgh in 2013

...and find the answers to all your mercury questions!



2013 will see the launch of the UNEP Global legally binding instrument on Mercury. Since the agreement is signed countries need to meet it. To meet the requirements for identifying, reducing, and controlling mercury releases from various sources, the international community has set a significant challenge.

The International Conference on Mercury as a Global Pollutant will be held in Edinburgh, Scotland, from 28th July to 2nd August 2013. It will bring together scientists and experts from all aspects of mercury behaviour and control. Each day of the meeting will start with discussion on one of the major challenges of the new instrument.

The 3 day conference will continue with parallel sessions on a number of subjects covering all areas and aspects of mercury release: from water, chemicals, and consumer goods, mining, dentistry and so on, to the scientific, technical and ethical of mercury in our environment.

The conference will be accompanied by the largest ever exhibition of mercury-related organisations. It is being organised by companies providing a wide range of mercury monitoring and control equipment. There will also be public outreach activities to help bridge the communication gap that often exists between the scientific community and the wider public.

Edinburgh is one of the most beautiful and vibrant cities in the world. Where better to host than the past the the future?

More to go!

www.mercury2013.com

Tel: +44 (0) 1727 858840 • Email: info@mercury2013.com

16th International Conference on the Properties of Water and Steam

1st-5th September
Sensing in Water 2013 2nd Biannual Conference

25th-26th September
Crossing the Currents: Water and Social Media

26th-27th September
Drainage monitoring workshop

October 2013
Innovation workshop

November 2013
WFD Lille 2013

4th-6th November 2013
For further info: <http://www.rsc.org/>

www.rsc.org/
[Membership/Networking/InterestGroups/WaterScience/ForthcomingEvents.asp](http://www.rsc.org/)

**The Newsletter of the
Royal Society of Chemistry
Water Science Forum**

Editors:

Kevin Prior & Bruce Petrie
c/o Water Science Forum,
Royal Society of Chemistry

Thomas Graham House, Science Park
Milton Road, Cambridge, CB4 0WF.

Email: kevin@thackie.co.uk

The views expressed in the newsletter are those of the authors and do not necessarily represent the views of the RSC, the Water Science Forum or the author's organisation

Alan Tetlow Bursary

In memory of Alan Tetlow the Water Science Forum bursary will help post graduate students, young (under 35) or professional water scientists during the first 10 years of their career.

Contact: Hon Sec, RSC Water Science Forum, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK

The Water Science Award

The Water Science Award is now open to receive applications. The award will focus on a key priority area each year. 2013 is the year of Water for Food where research projects examining the application of water in agriculture are supported. The award is for early stage chemists (during the first 10 years of their career) and those returning to work after a career break. The award is to financially support applicants to deliver a research project in the Water for Food area which will help further their professional career.



Funds are also available to assist MSc students or other career development routes including those who have no formal higher qualifications (degree, HND). This may be particularly relevant to members aiming to achieve Registered Science Technician (RSciTech) or Registered Scientist (RSci). Status.

Parliamentary and Scientific Committee Meeting – Water Purity

Mindy Dulai

The Parliamentary and Scientific Committee is a group that meets several times a year and provides a forum for parliamentarians who are interested in science to discuss topical issues in science with input and talks from experts in the field.

On 14th May, the group held a meeting on 'Water Purity'. There were three invited speakers, including Kevin Prior, Chair of the WSF. The opening speaker Clive Harward of Anglia Water gave an outline of the issues faced by water companies in relation to monitoring and treating water to ensure it complies with the many and varied regulations that it is subject to. Kevin's talk followed on, expanding on the 'myth' of water purity and the disconnect between scientific evidence and many of the standards that water within the UK is currently subject to. These included issues such as the setting of standards for analytes below the limits of detection, the use of surrogate zeros and allowing a choice of standards, which in practice can lead to the same environmental situation being reported inconsistently. Kevin completed the talk with an overview of the activities of the WSF, including their role in providing access to a wide range of expertise in the water sciences.

The talks were completed by Professor Helen Jarvie from the Centre for Ecology and Hydrology in Wallingford who gave an insight into new research on the causes of algal bloom and in particular, deciphering the role of phosphorus in this process. All three speakers were well received and the talks were followed by a lively Q & A session which covered topics including fluorination of drinking water and water safety planning processes.

The event was followed by a drinks reception and a dinner for selected participants that was chaired by Andrew Miller MP, the Chair of the House of Commons Science and Technology Select Committee, providing a further opportunity for Kevin and the other speakers to discuss with the MPs present the importance of chemistry and science in relation to the development of water policy.

Water Regulation briefs

John Machell

Water Industry Regulation

The water industry is one of the most highly regulated activities in the UK. Numerous regulatory bodies focus their activities on financial and environmental matters, drinking water quality and, of course, health and safety aspects of the industry. In this issue of your newsletter we take a brief look at drinking water quality regulation, and provide links to appropriate Internet resources where more detailed information can be found.

Drinking Water Quality

Each year, hundreds of thousands of analytical procedures are carried out on water samples taken from water resources, treatment plants, storage facilities and distribution networks; including customers' homes and industrial premises. Analytical results are used to measure water company performance against both [EU](#) and [UK](#) quality standards. In England and Wales performance is continually monitored by the [Drinking Water Inspectorate](#), and in Northern Ireland and Scotland, monitoring is the responsibility of the [Northern Ireland Environment Agency](#) and the [Drinking Water Quality Regulator](#) respectively.

The most recent Organisation for Economic Co-operation and Development (OECD); [Better Life Report](#) states "The United Kingdom also does well in terms of water quality, as **97% of people say they are satisfied with the quality of their water**, more than the OECD average of 84%"; so the UK system appears to be working well.