

**Points of interest:**

- Water droplets
- ICMGP Edinburgh 2013
- WSF to award best students at ICMGP

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

**In this issue:**

**Retiring WSF treasurer—Kevin Prior**

**Reflection on the past four years**

**Protecting water catchments from diffuse pollution—the emerging evidence**

**The money!!!**

## AQC for the Microbiological Analysis of Drinking Water

By Gavin Mills

A one-day conference with the title “AQC for the Microbiological Analysis of Drinking Water” was organised by the Water Science Forum and was held on 31<sup>st</sup> January 2012 at the Chemistry Centre, Burlington House.

Analytical quality control in chemical analysis has been well established for many years, but in the field of water microbiology it is a relatively recent means of monitoring quality for the analysis of microbes. The rules used in chemical analysis to determine “out of control” conditions do not readily apply in microbiology and there is a need to confirm that what actions may be appropriate in relation to investigation and reporting of results. Furthermore, given that most laboratory quality managers are chemists there is a need to educate them about what such an out of control microbiological condition looks like. The conference set out to address these issues by reviewing current practices and seeking areas in need of improvement in order to advance knowledge of those working in potable water analysis.

The six speakers included the renowned microbiologist David Sartory, who set the scene; Robert Stacey, a consultant with many years experience quality management in water testing laboratories and also a co-organiser of the meeting, who presented a very useful summary of current practices within the industry; Peter Jenks from Sigma-Aldrich talking about the use of reference materials; Andy Gawler, a UKAS Technical Assessor; Sue Passmore from BSI Committee EH3/4 on microbiological methods; and Marcus Rink, Deputy Chief Inspector at the Drinking Water Inspectorate.

The conference established that quality control in the field of microbiology has made excellent progress in recent years, such that, with standardisation of procedures and provision of high quality reference materials, many of the rules that apply to chemistry AQC can now be considered acceptable for microbiology. Of course, a major difference between microbiological AQC and chemistry is that the “target value” is a growing one. It was also worth remembering that a contaminated sample of drinking water may contain a very small number of bacteria, which may not be homogeneously distributed throughout the sample, whereas a contaminated chemical sample of drinking water may contain a large number of atoms/molecules, which are distributed homogeneously throughout the sample (e.g. 200 mg/l aluminium in water contains  $4.46 \times 10^{20}$  ions in 100 ml of sample).



Standard reference materials were described and are stable for extended periods (Lenticules®, Vitroids® etc.) and are reconstituted prior to incubation alongside samples. The numerical range of bacteria in such reference materials is relatively narrow, but the microbiologist still has to assess each batch of materials before setting up the QC limits for that batch. This also has to be done for each analytical method used, as different methods produce different mean values. A breakout session gave delegates the opportunity to ponder questions such as “Should the positive control always be prepared from a specified culture (e.g. *E. Coli* NCTC 90001)? If so, what would be a realistic target level?” and others related to grey areas regarding out of control conditions, PT schemes and the respective merits of different reference materials. The breakout groups agreed that AQC charts in microbiology should be viewed as guidance rather than control, since there is usually no opportunity to repeat or re-run a microbiological analysis unlike in chemical analysis, or to take fresh fit for purpose sub-samples. It was also agreed there was also more scrutiny of negative and positive blanks compared to chemistry and therefore rejection of batches of analysis, due to potential problems with quality was a complex issue, further complicated by the importance of microbiological analysis in drinking water analysis in terms of public health. The outcomes of the breakout session and the open forum at the end of the day will be sent to all delegates and posted on the WSF conference webpage.

Marcus Rink confirmed that available techniques for assessing quality in microbiology are deemed fit for purpose by the Inspectorate. Marcus also stated that DWI was about to issue an Information Letter providing further guidance on the regulatory requirement for potable water testing laboratories to be accredited by UKAS, or equivalent accreditation body.

Sue Passmore representing BSI, made a plea for microbiologists in the industry to continue to work together to produce standardised procedures and to actively contribute to the work of BSI Committees. There is also a need for fresh faces to contribute to the Standing Committee of Analysts Working Group 2 as many experienced figures in this field were reaching retirement.

Post conference feedback from delegates was very favourable regarding the conference and provided a very useful forum for confirming good practice and educating non-microbiologists working in potable water analysis. The breakout session and open forum were also useful and it is intended to provide feedback from these to all water industry laboratories via the DWI- Water Laboratory Liaison Network Group.

Thanks are also extended to Claire Stacey as a co-organiser of the meeting and also acting as conference secretariat.

**WSF to award best students at the 11<sup>th</sup> International Conference on Mercury as a Global Pollutant.**

**From July 28th – August 2nd 2013 the 11th ICMGP - International Conference on Mercury as a Global Pollutant will take place in Edinburgh, Scotland.**

**The ICMGP in 2013 will be of particular public importance as this will be the year of the launch of the United Nations Environment Programme Global Legally Binding Treaty on Mercury. The ICMGP 2013 meeting is therefore perfectly timed to celebrate the official launch of the treaty and to discuss how to put the treaty into practice. WSF is getting involved by badging this prestigious event and also encouraging student participation by awarding two prizes of £500 for the best poster and best oral presentation by registered students whose research is water related.**

Water Science  
Forum

**Subscriptions 2012—2013**

2012 all inclusive fee\*

2013 all inclusive fee

\* up to 3 interest groups included in RSC membership, each additional interest groups £10 each

## Retiring WSF treasurer—Kevin Prior

*By Helen Keenan*

Kevin Prior (FRSC, EurChem, FCIWEM, MBA) is a current member of the Water Science Forum and past treasurer (2007-11) Kevin epitomises the success that can be gained through non traditional alternative routes that lead to achievement recognised both by professional bodies such as the RSC and CIWEM and the scientific community. Kevin is Director and joint owner, of CookPrior Associates Ltd, an environmental and regulatory consultancy based in the Scottish Borders. He is also engaged as an Honorary Lecturer at the David Livingstone Centre for Sustainability, Department of Civil Engineering at the University of Strathclyde in Glasgow. He has particular interests and teaches post graduate students in Business Strategy and Water Policy. The Global Water Policy course is a good example of how the DLCS integrates business strategy, water policy and the management of the science /policy interface.



**Retiring treasurer Kevin Prior**

The MSc students (domestic and international) learn and practise how science and technology (particularly chemical sciences) have a strong influence on the public and private policies which are needed to achieve Global Water Policy from the Millennium Development Goals through the provision of sophisticated water and sewerage services in developed economies. This holistic Triple Helix approach (education, business and government) ensures achievable sustainable solutions to modern day problems.

Kevin also co-ordinates a research partnership with Peter Booth of DLCS under the StrathLinks knowledge exchange initiative. This has examined the role of competition in Scotland to facilitate the sustainable use of water. The research output has been accepted as a poster for the World Congress on Water, Climate and Energy in May 2012. CookPrior and the University of Strathclyde are currently investigating the extension and continuation of this research.

The WSF actively supports its members and the wider water community in the practicality of achieving safe drinking water and sanitation for all by its members sharing their knowledge and experience in courses, conferences and CPD seminars. This enables career development through workplace learning and also acceptance by the professional societies.

## Reflection on the past 4 years

*By Martyn Jones*

It's not often that the WSF committee looks backwards because backwards isn't where we are going. We prefer to look forwards and proactively represent our members' interests. However, it doesn't hurt every now and then to briefly look behind just to see how far we've come. As my tenure as Chairman of the WSF committee comes to an end I can see that over the past four years we've made huge advances.

-We've not only successfully ridden the storm of an economic downturn and recession but we've put in place financial governance processes and procedures that are now recognised as best practice within RSC and are the envy of many other groups.

-We've adapted our successful programme of conferences, seminars and events to keep them within reach of hard-pressed businesses and their staff, whilst retaining currency of the topics covered and ensuring strong links to the RSC's Roadmap priorities.

-We've actively engineered a rotation of members on the committee to ensure that we always have fresh ideas and approaches whilst maintaining a degree of continuity and a close correlation with the profile of our membership.

All of this has been achieved whilst holding fewer, more focussed committee meetings and reducing costs and overheads.

The work still continues and the new committee, led by a very capable new chairman and guided by an equally capable new treasurer are already making further improvements to how the committee represents the interests of members, and to the standing of WSF both inside and outside RSC.

I urge any WSF member to come along to a committee meeting, see what goes on and get involved. We're continuing to go forward. It would be great to have you on board.

I'm proud to have played a part in a success story. So will you be.

# Protecting Water Catchments from Diffuse Pollution - the Emerging Evidence

By Martin Furness

Volume 13 Issue 1

If conference success is judged against attendance numbers, networking opportunities and adding value to the subject in question, then this conference was a success. The delegate feedback gave it an overall score of 4.2 out of 5, despite the programme being very busy.

The 83 delegates came from across the UK and Ireland and received presentations from respected experts, with a Panel Session towards the end of the day. Representatives from Regulators, water companies, academia, NGOs, consultancies, CCW and the NFU were present. The aims were described as follows:

*Catchment management is on everyone's agenda. Low cost practices, which deal with pollution at source, sit well with the aim of a sustainable water sector. This one day conference provides an opportunity to hear from leading organisations in the UK who are promoting catchment management approaches, particularly upstream of water treatment works. There will be a Panel session at the end, involving leading policy makers in this area. This occasion will help Ofwat formulate its policy and expectations for the next price review.*



The objectives were to:

- To explore the breadth of the water quality and environmental challenges
- To understand what is working and what is needed to identify robust, cost effective measures, based on sound evidence, which can be adopted and promoted
- To hear about the value of national, regional and local approaches, share the learning and identify integrated actions
- To debate how voluntary actions, incentives, regulation and enforcement can best work together
- To discuss proportionate stakeholder contributions within polluter pays or beneficiary pays principles
- To provide evidence and stimulate policy thinking to aid the development of Ofwat's approach for the next price review

The scene setting was provided by Noel Wheatley, Director of Environmental Policy, Ofwat who placed catchment management work in the context of the next price review. The regulatory viewpoint was provided by Chris Ryder, Head of Water Quality, Defra. Catchment management initiatives are referenced in the Water White Paper and the Water Framework Directive. Further detail on the national Pilot catchments programme was provided by David Baxter, Head of Catchment Management, EA. National perspectives on approaches to land management and diffuse pollution mitigation were given for Wales, Scotland and Ireland, which proved most informative for the discussions that followed. Three water companies described the specific actions they have undertaken and the emerging benefits, with some costs quantification. Farmer/land owner engagement is a key factor. After lunch we heard about how Paying for Ecosystem Services is an important component of the regulatory/voluntary/incentives mix to gain diffuse pollution mitigation. International examples were shown. The agricultural perspective was delivered by the National Farmers Union with emphasis on the beneficiary gets principle. The role that catchment management can play in drinking water protection was provided by the Drinking Water Inspectorate. Such initiatives cannot be considered on their own as treatment may still be needed.



There then followed a Panel session with questions on:

- Barriers to implementation of catchment management
- Payment for ecosystem services beyond a good practice level
- How to engage with water customers
- A different water quality standard for metaldehyde

The conference was concluded with a presentation on the UKWIR project to "Quantify the Benefits of Catchment Management", where an assessment and evaluation framework to assist water companies, was explained.

## Water Droplets:



**"water is the only naturally occurring inorganic fluid currently known"**

**"water resource issues can only be addressed by scientists, engineers and policy makers working together."**  
Professor Tony Allan

**Come to Edinburgh in 2013**

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



20th July-2nd August 2013

2013 will see the launch of the UNEP Global Mercury Regulation on Mercury. This has significant implications for the UK and Ireland. The ICMGP will provide a platform for the UK and Ireland to discuss the implications of the regulation and to share best practice.

The ICMGP will continue with its focus on mercury and will provide a platform for the UK and Ireland to discuss the implications of the regulation and to share best practice.

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Please go to [www.mercury2013.com](http://www.mercury2013.com)

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

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  
Burlington House, Piccadilly  
London W1J 0BA

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

**VISIT THE WSF WEBSITE:**

<http://www.rsc.org/Membership/Networking/InterestGroups/WaterScience/>

**Alan Tetlow Bursary**

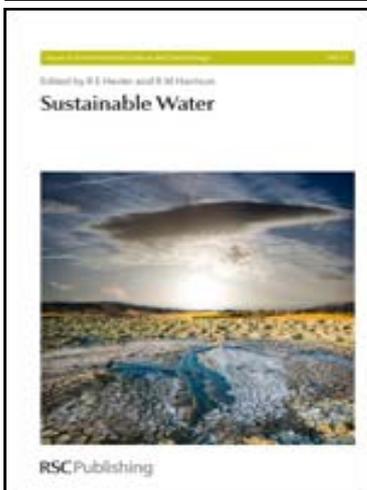
In memory of Alan Tetlow the Water Science Forum bursary will help post graduate students or young professional water scientists during the first 10 years of their career.

**Contact:** Hon Sec,  
RSC Water Science Forum  
Royal Society of Chemistry  
Burlington House, Piccadilly

**Sustainable Water**

The proceedings from the WSF organised Sustainable Water seminars held at IUPAC are now available from RSC Publishing.

<http://www.rsc.org/Shop/books/series/12.asp>

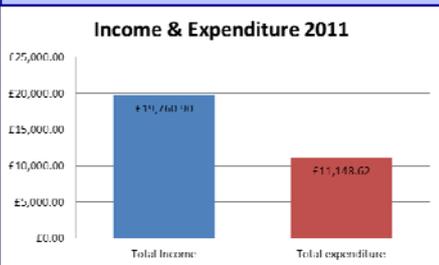


**The Money!!!**

By Kevin Prior

The story of 2011 is the success of the conference and seminar programme sees the WSF in a financially healthy position for the year ahead.

The main story in the 2011 accounts is the successful re-establishment of the WSF conference and seminar programme. The WSF committee gratefully acknowledge and appreciate the hard work put in by the organising committees and individual members who have made these events so successful.

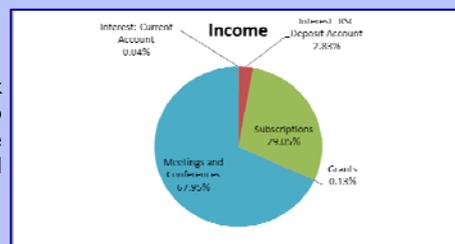


Total Income for 2011 amounted to £19,760 of which £13,428 came from conferences and seminars. Total Expenditure came to £11,148 of which costs associated with running the conferences and seminars £4,893. The net surplus for the year came to £8,612. The overall assets stood at £35,561 split between being on deposit with the RSC and a Co-operative Bank Community Plus account.

These reserves have allowed WSF to maintain the value of the Alan Tetlow Awards during these economically trying times.

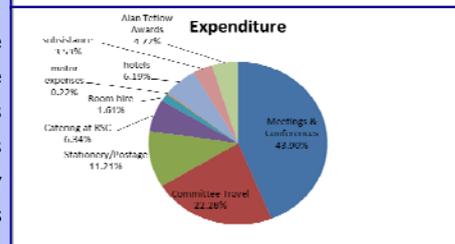
**Income**

The subscription income comprises the block grant from the RSC based on our 2009 membership plus a "top up" for increases in membership since 2009. This grant is reviewed every three years and paid one year in arrears.



**Expenditure**

After the costs associated with running the conferences and seminars the main costs of the Forum are the committee travel expenses. WSF is proud to be one of the most active interest groups in the RSC and be fortunate to have an equally committed and diverse membership, this has resulted in correspondingly significant travel costs to attend meetings and represent WSF.



This has resulted in the cost of travel has become the most significant cost to the WSF. The committee appreciates the efforts members make to keep costs to a minimum by using advanced purchase ticket, rail cards and special promotions where they are available. In fact rail and air travel have risen to such an extent that it is often less expensive for members to stay overnight than get a standard return train ticket, not withstanding the unsocial travel time for members who have to travel long distances.

The main items of income and expenditure are summarised in the charts. Running Costs include committee expenses for travel to meetings along with printing, mailing and other distribution costs.

The committee has taken the view that communications with members can be improved by greater use of MyRSC pages and other electronic communications, most members have now agreed to accept communications from WSF in that way. In addition to improved and easier communications this initiative will bring down the printing and postage costs. The committee is always looking at the way it does things to ensure its finite resources are used in the best interest of the members.

The committee would like to open a discussion within the WSF to get members' views how the cash released from these initiatives can be used to further the objectives of the Forum. Ideas suggested so far include more use of "citizen science" to gain greater public awareness and involvement with the big water issues facing us all over the next few years. So please let us have your views by E-mail to the secretary of the Forum

So it is on this high note I would like to say thank you for all the support and assistance I have had from WSF members and staff during my tenure as Hon Treasurer and wish my successor Gavin Mills every success as he takes over from me in 2012.