No. 89 May 2006

THE NEWSLETTER OF THE BRITISH HYDROLOGICAL SOCIETY

Circulation

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BHS birthday survey results

Last year, to mark its 21st birthday, BHS undertook a survey of its membership to gauge your response to a number of issues that the Society's committee has been facing. This is the first full survey of members since 1992 (when current President Rod Hawnt wrote up the results for *Circulation*!); Roger Simpson carried out a survey in 2001 concentrating on our regional activity (*Circulation 71*, p.16).

Having found time over Christmas to process and analyse the data, I am very pleased to present the results of the 2005 survey. There were 123 members' responses, which out of a total membership approaching 1000 is a reasonable return. It is impossible to tell whether those who responded are a representative cross-section of the membership, since we don't have comparable data from ICE for the whole membership, but the size of the sample does militate somewhat against any bias.

The questionnaire results largely speak for themselves: BHS members stick with the Society for long periods of time, generally have experience of other societies to act as comparators, and are drawn from across the academic and practising hydrology communities. Members had clear views about what they wanted the Society to do and are very supportive of the meetings we run and the way we run them.

Of all the initiatives that the Society has recently been asked its opinion on, it is clear that a high priority is to focus our efforts on providing routes to professional development for hydrologists and promoting hydrology in its widest sense.

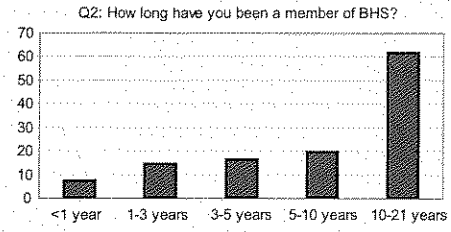
Those who responded were evenly balanced on the question of BHS becoming part of a wider science or engineering grouping of societies, and on the whole you were against the Society developing its own journal, unless this was at low cost. Many of you liked the new website, and had useful comments about it, which have been passed on to the site administrators. The idea to add a discussion area attracted wide support.

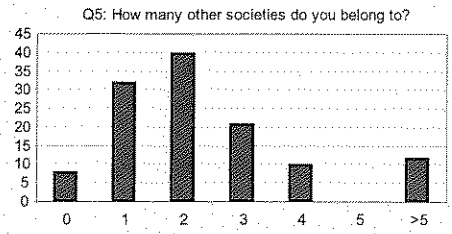
Lastly, we asked whether the BHS logo should be retained, modified or redesigned. This arose because we are increasingly using the logo in places, such as the website, where the "C" design (which makes sense when used as the first letter in *Circulation*) is somewhat difficult to explain. Choice of logo is always a tricky subject, but there was a majority in favour of

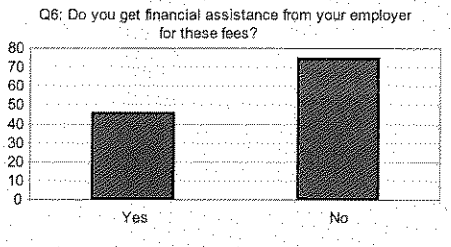
modifying the existing logo, albeit with significant minorities in favour of no change or having a competition for a whole new design.

Selected results

(Q1 asked for your membership no.)



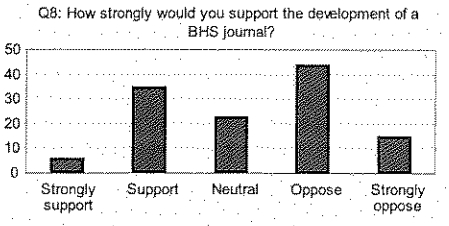


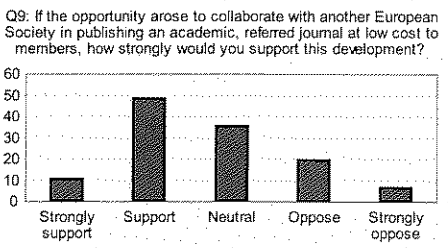


Society profile

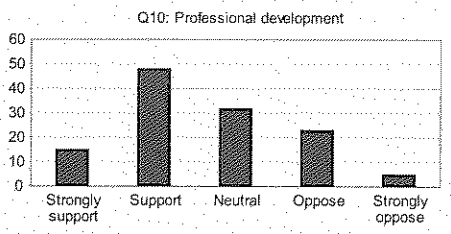
BHS was established as a "low-cost" organisation, to encourage wide membership. Members were asked about developments that would mean significant increases in fees.

Q8. How strongly would you support a BHS Journal if it would add ~£30 a year to your membership fee?

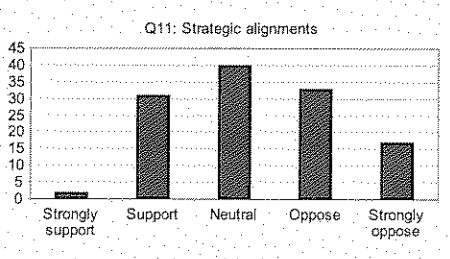




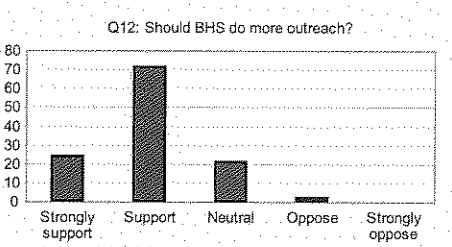
Q10. Professional development: BHS liaises with bodies (ICE, CIWEM, Royal MetSoc) who offer routes to chartered status. Would you support BHS being more proactive in developing routes to chartered status if it meant a rise in fees?



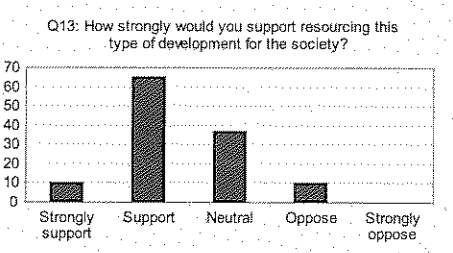
Q11. Strategic alignments: In general, do you support BHS contributing to a "super society", a grouping of societies with a dedicated paid administration, to gain stronger influence?



Q12. Is BHS doing enough to promote hydrology? Should we be providing more guidance to those considering hydrology as a career, and developing their careers? Should we be more active in advertising jobs and providing a forum for employers to find staff?



Q13. How strongly would you support resourcing this development?



Meetings

Q14. National and regional committees organise scientific meetings and try to run a balanced programme, including joint meetings with other related organisations. See the table below for members' opinions on meetings.

Website

Q15. The most frequent comment on the website was that it should be updated much more often, particularly the news ticker. Other suggestions:

- Posting job vacancies
- Information on committee members
- Better resources for academics and students, in particular with reference to links to articles from journals
- Resources such as presentations from past meetings
- Links to sources of hydrological data and databases
- More information on the committee of the Society, to know "who is who" in their region and overall.
- A members-only forum or discussion area *(see Q16 below)*.
- Ability to order journal editions and pay subscriptions on the internet.

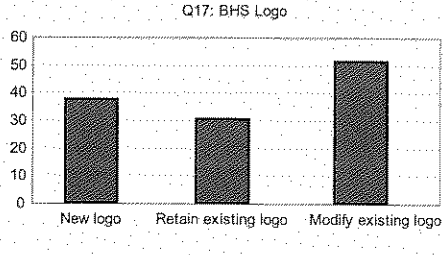
It was also particularly evident from the questionnaires that many people (nearly 50%) didn't use the website, and found that they had no need of it, or felt that it did not provide the information that they wanted in a format that was easy for them to use.

Q16. Would you support a discussion area on the website?

Yes 65 No 23

BHS logo

Q17. It has been suggested that the current BHS logo, the *"Circulation"* C, needs updating. The committee in general agree, but prefer to modify the present logo so as to retain the current "identity" but move away from the letter C. Each option had some support:



Q14 Opinions about BHS meetings (percentages)	Yes	No	Don't know
Meeting topics should be more varied	22	64	14
Meetings are not topical enough	7	80	13
Too many meetings held with other organisations	1	86	13
Meeting publicity should be mostly via email-list and email	65	28	7
More evening meetings should be arranged	33	52	15
Meetings are too expensive	10	77	13

The results of this survey give a very clear steer to the committee and will be extremely useful to them. In retrospect, a lot of the questions could have been better designed (so perhaps social science *is* as difficult as my human geography colleagues tell me!), and we could have made the questionnaire a bit easier to respond to.

However, the outcome is a broad survey of a reasonable number of members on several key issues and it can be used to focus the energy of the Society and the activities of the main committee. After 21 years BHS seems to be in very good health, with a growing and committed membership, and should be looking forward to turning 30!

Paul Bates
University of Bristol

BHS Student Award 2006

The BHS award for students was launched in 2002 to encourage undergraduates to study hydrology. The award is given annually to individuals producing the best dissertation, judged by a panel drawn from the Society's committee. It is hoped that this award fosters interest in hydrology among undergraduates and encourages them to become student members of the Society to develop their interest and explore the potential for a career in hydrology.

The first prize of £400 and two runners-up prizes of £200 will be awarded again in 2006 to those dissertations that, in the opinion of the panel, are outstanding in terms of their achievement, originality and presentation. Each dissertations must be commended by the student's supervisor and only one will be accepted from any department. The closing date for submissions is **3rd July 2006**.

Joe Pearce, Hon. Secretary

Books for review

Would any member be interested in reviewing one of these new Edward Elgar books for *Circulation*?

"Sustainable management of water resources, an integrated approach", ed. Carlo Giupponi *et al.*

"Water management in arid and semi-arid regions: interdisciplinary perspectives", ed. Phoebe Koundouri.

JACOBS BABTIE

Senior Hydrologist, Glasgow

Salary to be agreed (dependent on experience & qualifications)

Job Description

Jacobs Babtie is one of the UK's leading technical and management consultancies with over 4400 staff across the UK and internationally.

Due to an expanding hydrological workload and increased opportunities we have an opening for a Senior Hydrologist. Working as part of a specialist team, you will provide input to projects across the UK and potentially overseas.

The focus of the role will be flood and water resource hydrology but with the opportunity to contribute to many wider hydrological issues.

Requirements

The post is suited to a person with a postgraduate qualification in Hydrology plus four or more years relevant hydrological experience (or equivalent to this). Familiarity with the procedures of the Flood Estimation Handbook is preferred.

Benefits

We offer a competitive package which includes a Pension and Life Assurance Scheme and the opportunity to participate in our Flexible Benefits programme which offers up to 28 days holiday per annum and a range of additional benefits.

To apply for this position please visit *http://www.jacobs-babtie.co.uk* Careers/Vacancies Position Ref 2402. Alternatively send a digital copy of your CV direct to David Price at *davidj.price@jacobs.com* or phone David for more information on 0141 566 8495.

Routes to Chartered Status for hydrologists

BHS National Meeting
Imperial College London
22 February 2006

Options for hydrologists to seek Chartered status were last reviewed by BHS over 12 years ago. This meeting provided a detailed update, with presentations from key institutions and employers, and case studies from members' experience.

Chartered Engineer (CEng), Chartered Water & Environmental Manager (MCIWEM), Chartered Meteorologist (CMet), Chartered Geographer (CGeog), Chartered Environmentalist (CEnv), Chartered Scientist (CSci) —

there is a wide selection of professional titles which a hydrologist might want to aim for. Furthermore, hydrologists can potentially be affiliated with a number of Societies and Institutions, each offering different grades of membership and chartered status options, for example:

- Institution of Civil Engineers (ICE)
- Chartered Institution of Water and Environmental Management (CIWEM)
- Royal Meteorological Society (RMetS)
- Royal Geographical Society (RGS)
- Institution of Water Officers (IWO)

It is over 12 years since alternative routes to Chartered status for hydrologists were reported to BHS (*Circulation 41*, February 1994). This meeting gave members an updated review of the options, with presentations from representatives of key institutions and employers, and case studies from recently chartered hydrologists.

Working groups encouraged specific questions to be answered and provided a forum for discussion. The abstracts from the meeting are available on the BHS website (*http://www.hydrology.org.uk/meetings/Abstracts_22Feb2006.pdf*) and a report entitled *"Information on Routes to Chartered Status for Hydrologists"* will be made available to download from the website and will be published with the August issue of *Circulation*.

Chartered status

In order to comprehend the issues and procedures behind getting Chartered, it is helpful to first distinguish between the professional institution to which a hydrologist may apply for Membership (e.g. ICE, CIWEM, RMetS, RGS, IWO), and the Council or Society who can register us as 'Chartered' and who dictate the basic requirements for award of that title (e.g. the Engineering Council, the Society for the Environment and the Science Council). For simplicity here the first group are called 'Institutions' and the second group 'Councils', although that's not quite accurate.

The Councils and most of the Institutions have a 'Royal Charter' granted by the Privy Council (a government office) which gives them authority to 'entitle' us as Chartered. The Institutions assess candidates both for Membership of their Institution and for registration with the Council as Chartered. This includes setting a specific list of professional development requirements, often called 'Development Objectives' or 'Mandatory Competences', which include the Council's basic criteria for attaining Chartered status, and may include more specific Institution requirements.

ICE, CIWEM, RMetS and the RGS have Royal Charters, and you may become Chartered directly via any of these Institutions without reference to an external Council, although registrations with one or more external Councils may usually also be applied for. IWO does not have its own Royal Charter and so cannot give Chartered status directly. However through membership of IWO you can apply for Chartered status with a Council (e.g. CEnv via The Society for the Environment).

There are also various options to achieve membership (or grades of membership) of the Institutions without necessarily becoming Chartered. To get Chartered status normally involves submitting written reports documenting your experience to the required competences and attending a face-to-face interview (often called a professional review). The specific requirements vary for each Institution and Council.

The Institution of Civil Engineers

Gareth Jones, the ICE's Professional Development Senior Manager, gave the first presentation. The ICE offers a range of grades of Membership and paths for getting there, depending on qualifications and experience.

1) To become a Chartered Engineer via the ICE, you must (with exceptions) first have a Masters level degree accredited by the ICE, typically an MEng in Civil Engineering, but it may differ, for example an accredited BEng or BSc followed by an accredited MSc. The ICE holds a list of accredited degrees, and is willing to consider degrees not on its list. They may request 'top up' courses and require you to undergo an Academic Assessment;

2) Engineering experience can count in lieu of academic qualifications. In an extreme case you may not need a degree at all, but can expect to spend ten years or more achieving equivalent experience;

3) To become a Chartered Engineer your Development Objectives will include 'engineering principles' (technical and professional). Training and experience that is hydrological science, but not engineering, will not be sufficient. Some experience of construction sites will be required for anyone whose position might involve responsibility for designing civil works;

4) You can be a Member of the ICE (MICE), but not a Chartered Engineer, with any Bachelors-level degree. This still requires experience of engineering principles. If your degree is accredited then you have the option of becoming an Incorporated Engineer (IEng);

5) From Autumn 2006 there will be a new Associate Membership of ICE (AMICE). This is designed to encourage professionals who are closely involved with civil engineers, e.g. hydrologists, to become affiliated. It requires a Professional Review based on technical or scientific principles;

6) Once you are a MICE, you can become a Chartered Environmentalist (CEnv) via the ICE, subject to the requirements of the Society for the Environment;

7) Members of professional institutions in EU countries can short-cut the procedure towards membership of the ICE (and other UK institutions);

8) There is no explicit 'research route' to MICE, but researchers may be able to meet the requirements.

A detailed introduction to the new 3000 Series of ICE Membership documents is available in Gareth's abstract (available from BHS website).

No 'time-serving' is required to be ready to take the ICE Professional Review, although a minimum of three years relevant experience is usually required to achieve the training objectives, and five years is average. Recently, about 80% of candidates have passed first time.

Many employers run Approved Training Schemes, and will assign a Supervising Civil Engineer (i.e. a mentor) who is responsible for appraising whether you are ready to sit the Professional Review, and for arranging for you to get the required Initial Professional Development (IPD).

If you are not on an approved scheme, professional development is approached by Self Managed Training and Experience, and the ICE will do a Career Appraisal to assess whether you are ready for the Professional Review. If you are ready, you can apply immediately to take the Professional Review, which involves submission of training reports, an interview and writing an essay under exam conditions. If you are not, the feedback will provide recommendations for additional experience and training.

The Chartered Institution of Water and Environmental Managers

Rosemary Butler, Director of Membership of CIWEM, gave the second presentation. Like the ICE, a range of membership and Chartership options are of potential interest to hydrologists:

1) To become a full member of CIWEM you need an accredited honours degree, 4 years' relevant experience and to be aged 25 or over. Membership automatically makes you a Chartered Water and Environmental Manager (MCIWEM);

2) An Associate Member will need an accredited degree, 4 years' relevant experience and to be at least 23. Both grades of membership require you to pass a Professional Review which assesses (by report and interview) whether you have achieved CIWEM's Mandatory Competences. Because of the broad range of professions covered by CIWEM, the interviewers will be reasonably matched to your expertise;

3) When applying for full member-

ship, you will be invited to apply for registration as a Chartered Engineer, Chartered Environmentalist or Chartered Scientist. If approved by a Professional Board, your eligibility will be assessed during the Professional Review, based on the requirements of the appropriate Society/Council as well as those of CIWEM. If you ask to be considered for Membership of CIWEM, CEnv and/or CSci and you fail to meet the competences on any one of these, then you will fail them all. The reasoning here is that the competences are all aligned, so if you have not met them for one Chartership you won't have met them for the others. CIWEM helps to guard against this happening by carefully vetting all applications at the first stage;

4) Applicants can achieve the Mandatory Competences either through a formal training scheme with a mentor (who does not need to be a CIWEM member), or by individual achievement of competences and recording of experience. For those failing the Professional Review (recently about 21%) full feedback is given, together with advice about additional experience requirements.

Bob Sargent (CIWEM's Vice-President) gave a conclusion to Rosemary's talk. He noted that one of the original motivations for the formation of BHS was to promote hydrologists as professionals and potentially to introduce a 'Chartered Hydrologist' status. A quick survey showed that at least 50% of members present would support such a qualification, and slightly fewer would be prepared to pay additional BHS fees to support the associated administration that would be required.

The Royal Meteorological Society

Richard Pettifer, Executive Director of the Royal Meteorological Society, gave a presentation on becoming a Chartered Meteorologist (CMet) or Chartered Environmentalist (CEnv) through the RMetS. The CMet qualification is recognised formally in the EU and also accepted in Asia, the USA and Australasia. About five hydrologists presently hold the qualification.

Hydrometeorology is one of the 36 listed specialities within RMetS (and more can be added if needed). To become a Chartered Meteorologist, you first need to be a Fellow of the RMetS (FRMetS). To achieve this, you need to have an honours degree in science or engineering, and five years' relevant experience (e.g. as a hydrologist with meteorological interests).

Sometimes long experience can replace the academic qualification requirement. The review for becoming CMet includes assessment of examples of your written work and experience, recommendations from 3 referees (one of whom if possible should be CMet) and then an interview. The Accreditation Board then makes a recommendation to Council.

As with the other institutions, communication and professional skills are important requirements. Unlike ICE and CIWEM, formal written reports are not required by RMetS. Extensive knowledge of meteorology is not necessary, but you would need a good knowledge of basic meteorology and the meteorological aspects of hydrology (e.g. precipitation types and processes), and therefore a drainage or dam engineer might struggle.

Failure rates for first-time applicants are about 30%. A particular feature of the CMet qualification is that it is reviewed annually, and every two years you have to report your Continuing Professional Development (CPD), which is scrutinised by the Accreditation Board. If your CPD is found not to be acceptable, you will be asked to improve it or risk being struck off. You can also achieve CEnv status via RMetS — exactly the same procedure is followed, except that the Accreditation Board makes its recommendation based on the Society for the Environment's criteria.

The Royal Geographical Society

Lorraine Craig attended the discussion session to represent the RGS. The professional qualification of Chartered Geographer (CGeog) can be obtained via the RGS. The requirements are a recognised geographical-orientated degree, plus 6-8 years' working experience. There is, at present, no interview: the review is based on a paper submission. BHS already has some Chartered Geographers. Some 60% of Chartered Geographers are academics — it has never previously been pushed to non-academics.

The Institution of Water Officers

Information on getting chartered through IWO can be found in the section on "Case Studies from Recently Chartered Hydrologists".

The Environment Agency's plans for developing hydrologists

Richard Davis (Technical Advisor on Hydrology and Hydrometry Policy in the Environment Agency) outlined the plans and aspirations of the Environment Agency for building up the number of professionally qualified hydrologists it employs. There is a concern about loss of hydrological expertise within the Agency, and of their 179 hydrologists (those who spend more than 50% of time on hydrology), about half are under 30 and only about 25% are older than 40. This shows that the Agency depends on a small number of experienced staff, but it also presents a barrier to younger hydrologists who might seek to become Chartered, because there is a lack of experienced staff to encourage, coach and mentor them.

Richard outlined the "Sufficiently skilled hydrologists" programme. Its main objective is to develop a hydrological workforce with sufficient critical mass to provide authority and credibility, both internally and externally. Hydrologists must be comfortable in their role, confident in their technical and management skills and able to provide a specialised, skilled and professional service. One key long-term aspiration is to develop and implement a structured professional development programme for hydrologists.

The main routes to Chartership for hydrologists within the Agency are via CIWEM, ICE and RGS. The most common route is via CIWEM and among other things the programme seeks to establishing stronger links between Environment Agency hydrological competencies and CIWEM competencies. The ICE is another potential route: while most Agency hydrologists do not have engineering degrees, the new Associate Membership option opens up new possibilities for being affiliated to the ICE. The RGS may also attract many Environment Agency hydrologists.

Case studies from recently chartered hydrologists

The final presentations were *"MCIWEM, CEnv, MIWO ..., what are they and how do you get them?"* by Janet Makin (United Utilities), and *"Becoming a Chartered Scientist via CIWEM"* by Nik Whalley (Hydro-logic). Janet is a Member of CIWEM, CEnv, and a Member of the Institution of Water Officers (MIWO) and Nik has recently become a Chartered Scientist and Member of CIWEM.

Janet achieved CEnv via her membership of IWO, who also provide the opportunity to become CEng, IEng or EngTech. IWO is of a similar size to BHS and its strength is the networking opportunities it offers its members. Anyone working in the water industry can join IWO as an Associate Member. To become a Corporate Member you must be at least 21, with a satisfactory education base (BTEC or equivalent) plus three years' relevant experience. There is also a mature candidate route for those without formal qualifications.

Applicants have to prove their attainment of IWO's key competences through a Professional Review (written report and interview). There are three stages to becoming a Corporate Member of IWO. The first stage is to complete a simple application form (available on IWO's website); the second is submission of a Career Report illustrating your achievement of the IWO competences; the third is a

face-to-face interview which lasts about 30 minutes and can be held relatively locally. To become Chartered via IWO, the additional criteria of the Engineering Council (for CEng) or Society for the Environment (CEnv) must be demonstrated at the Professional Review.

As part of the first stage of applying to become a member of CIWEM, a form has to be filled in to provide evidence that CIWEM Mandatory Competences have been achieved. The speakers urged honesty and conciseness here, using recent examples, and Nik gave some examples of items in his application form.

The second stage of the application is the submission of a Career Report and a Project Report. Nik and Janet provided advice on writing the reports, stressing the importance of showing professional competency as well as technical competency, cross-referenced to the Mandatory Competences, and using Appendices for supporting information such as photos, diagrams and tables of data. The third stage is a professional interview held in London, typically 40-60 minutes, including a short (up to 7 minutes) technical presentation, a review of the project report and the achievement of the Mandatory Competences. Some evidence of good knowledge of current topical environmental issues is useful.

Conclusions

Some important points emerged from the meeting that are relevant to all the routes to Chartered status. There is no legal restriction on practising in the UK without being chartered. However Chartership has obvious benefits: it is an internationally recognised proof of professional competence and reputation, it stands out on a CV and improves promotion prospects. Some companies have codes of practice restricting the responsibility and work scope of non-chartered employees. Many advertised jobs are restricted to candidates who are chartered.

Training and work experience need to be documented, and ideally signed by a supervisor (this can be anyone who knows what you have done). Ultimately it will be up to the training mentor and/or review panel to decide if you have shown achievement of the relevant competences required for Chartered status, but it helps them to make a judgement if your record has been signed for and can be verified.

It is your responsibility to ensure that you have sufficient experience to prove that you have achieved the required competencies, but it is useful to have a mentor to help you to review your situation and suggest opportunities for fulfilling the requirements. It is often fruitful to have a mentor who is influential, but not your line manager, so conflicting interests in your work programme are avoided. Sitting the Professional Review without having the required experience and knowledge is not recommended, as the assessors are proficient at identifying weak candidates. It is recommended that candidates are honest about their competences and know their own limitations.

A PhD can count as work experience as well as an academic qualification: e.g. a relevant PhD counts as two years' experience for the RMetS. Student vacation work can also count towards meeting objectives if it is relevant, documented and signed off. Water and Environmental Training Services (WETS), a company often used by the Environment Agency and water companies, will provide independent training evaluations, particularly for CIWEM.

The main costs associated with each professional institution are currently:

- ICE: £225 Chartered Professional Review fee, £240 Joining fee, £210/yr membership fee (Member)
- CIWEM: £125 application fee (£60 for students), £205 Professional Review fee, £190/yr MCIWEM membership fee, £31/yr management fee for CEnv, CSci, CEng etc.
- CMet: £133 CMet Application Fee, £56/yr membership fee (Fellow of RMetS)
- CGeog: £78 joining fee (Fellow of RGS), £50 CGeog application fee, £20/yr membership fee (CGeog)
- IWO: £30 application fee, £70/yr MIWO membership fee (£60/yr for Associate)
- CEng: £25/yr membership fee
- CEnv: One-off registration fee of £50, £25/yr membership fee
- CSci: £15/yr membership fee

Some useful websites:

ICE *www.ice.org.uk*
CIWEM *www. ciwem.org*
RMetS *www.rmets.org*
IWO *www.iwo.org.uk*
RGS *www.rgs.org*
Society for the Environment *www.socenv.org.uk*
Engineering Council *www.engc.org.uk*
Science Council *www.sciencecouncil.org*

Land management and flood risk

BHS National Meeting
Cranfield University (Silsoe Campus)
22nd March 2006

This one-day national meeting was organised by the South East Section. It was very well attended by more than 70 participants, and lively discussions were generated by all the presenters.

Tim Hess (Cranfield University) provided a warm welcome with a reminder that it was World Water Day 2006 with the theme of *'Water and Culture'*. **Ian Holman** (Cranfield University) chaired the morning session.

The first speaker, **Philippa Francis** (Environment Agency), discussed *'the role of land management in managing flood risk'*. She introduced project FD2114 which reviewed the impact of land use and management on flood generation. There is substantial evidence that major changes in land use management, over the last 50 years, have had local scale impacts on local flooding, although the effects are complex. Identifying impacts of local land use management changes on large scale flooding is more difficult.

Philippa described measures that can be implemented to mitigate local flooding and stressed that an integrated approach is needed to mitigate pollution, erosion and flooding simultaneously. The Environment Agency and English Nature are promoting Catchment Sensitive Farming to raise awareness of good practice through a holistic approach to land management by giving on farm advice. The CAP reform to environmental stewardship facilitates this initiative by providing payments to farmers for meeting environmental targets. Philippa finished by outlining the cross-government programme 'Making Space for Water'. This is a large programme that will inform future land use management policy and farm advisors.

A lively debate followed focusing on whether it is valid to develop policies that involve changing land use management practices to mitigate large scale flooding, given the lack of scientific evidence linking the two.

John Packman (CEH Wallingford) considered *'Land use / management and downstream river flooding'*. He is sceptical of the impact of land use management on large scale flooding. Because we need extremely long datasets to identify trends we use models. Modellers are faced with the difficult task of scaling processes from the plot to the catchment scale.

As a precaution, in the UK Flood Estimation Handbook, changes are made to time to peak and standard percentage runoff to reflect changes in land use although supporting data are limited. A more scientific rational for such adjustments was sought in project FD2114 through a regression study of land cover impacts on precipitation runoff. It was demonstrated how HOST soil classes could be changed to reflect degradation of soil due agricultural intensification.

John then described some of his recent work on land cover impacts on precipitation runoff. Forty years of river flow data were analysed from cereal catchments where farming is assumed to have intensified. No change was found in annual maximum over this period. However, an analysis of peaks over threshold suggests that autumn floods may have increased in size and frequency. Precipitation runoff modelling illustrated that time to peak and field capacity both reduced. John concluded that land use management seems to affect model parameters, but the impact on maximum floods is still uncertain.

Sue White (Cranfield University) chaired the afternoon session. **John Hollis** (Cranfield University) spoke on *'Land management, soil hydrology and flood generation: evidence for linkages?'* In considering evidence for linkages he adopted the *Source – Pathway – Receptor* approach. He said that there is mounting evidence that the physical characteristics and hydrological response of soils to rainfall are being changed by land management practices. Enhanced soil surface capping and subsurface compaction can only increase surface runoff. Rainfall is transferred from areas within the catchment to the surface water network via overland flow, rapid interflow and intermediate interflow to groundwater. The surface water network represents the receptor.

Although there is good evidence that certain modern land management practices enhance surface runoff it is not clear how efficiently this is transferred to the surface water network. To clarify this issue, John said that it is important to distinguish between different types of flooding. There is good evidence that land use practices can lead to localised 'muddy' or 'flash floods'. Direct evidence that land management practices affect 'out of bank' flooding is limited.

Howard Wheater (Imperial College London) spoke on *'Upland land management and flood runoff — the Pontbren case study'*. He said that evidence for land management impacts on runoff processes at the field scale is limited. This is a particular concern in upland areas where significant runoff is generated. It is thought that changes in grazing densities and animal weights have changed the hydrological response.

The Pontbren (Severn headwaters) farmers' cooperative is focused on sustainable farming. Woodland areas and hedgerows have been reinstated. As part of the Flood Risk Management Research Consortium an extensive field experimental and modelling study has been established at Pontbren. The study is led by Imperial College with team members from the Centre for Ecology and Hydrology and the University of Wales Bangor.

Results suggest that tree buffer strips are likely to reduce overland flow by improving soil structure and increasing evaporation. Modelling and experimental studies are being used to evaluate catchment scale effects. New methods are being developed to upscale local processes. Catchment-scale effects will depend on temporal and spatial connectivity and they are likely to decrease for extreme events.

David Archer (JBA Consulting) presented *'Using changes in flow variability to assess impacts of land use change at a catchment scale'*. He emphasised the difficulty in providing convincing evidence of linkages between changing land use and flood risk on catchments greater than 10 km^2 using conventional methods (e.g. statistical approaches, unit hydrograph analysis or process based modelling). Land use changes in large catchments may also be complex in terms of their timing, hydrological impacts and spatial distribution.

David suggested that analysis of flow variability has potential to isolate the effects of piecemeal land use change over several decades. The proposed method is based on the frequency and duration of pulses above threshold flows selected as multiples of the median flow. Time series of numbers and durations of annual pulses, corrected for climate variability, are produced. David concluded by saying that the method is able to detect changes in flow regime in large and small catchments by targeting moderate floods which have sufficiently large sample numbers. Changes at moderate flow are not only highly relevant themselves but they also point towards likely changes at extreme flows.

Helena Posthumus (Cranfield University) considered *'The impact of CAP-reform on agricultural land management and flood risk'*. Although enhanced runoff induced by intensive land use is a physical process, the underlying causes are socio-economic, political and cultural. The production-orientated CAP resulted in major pressures on the rural landscape and increased runoff, soil erosion and pollution. The new CAP regime attempts to decouple financial assistance from production. Single payment and Environmental Stewardship schemes provide payments to farmers that are based on historic entitlement and environmental objectives respectively. The CAP reform supports extensification and therefore promotes land management practices that should reduce runoff.

Two case studies showed how the CAP reform assists farmers in land use management practices that are sympathetic to flood risk management. However, the hydrological benefits of extensification may be reduced by factors such as urban development and / or changing rainfall patterns.

Furthermore, as the current entry level scheme under the environmental stewardship scheme does not encourage a large uptake of new practices, only small changes in land management may occur. To be effective, changes in land use management should be targeted at the regional or local scale.

Farmers acknowledge responsibility for diffuse pollution but not runoff retention and storage of flood waters. The CAP reform promotes the idea of a multi-functional agricultural sector. The integration of flood risk management into policy in a way that is attractive to land managers is a key challenge.

Gareth Old
Centre for Ecology and Hydrology

Travel grants & Exeter Fund

Travel grants are available to help BHS members whose travel expenses are not met by an employer to attend scientific meetings. The amount will depend on the nature and location of the meeting and the case put forward.

Grants are mainly intended to help younger members, but are open to all members, especially if you have not had a grant before. Successful applicants will be expected to write a short report for *Circulation*.

The Exeter Fund offers grants to British hydrologists to take part in IAHS / IUGG events, such as the recent IAHS Scientific Assembly in Brazil.

To apply, use the form at *www.hydrology.org.uk/about_awards.htm* or contact **Peter Ede**, Mott MacDonald Group, Demeter House, Station Road, Cambridge, CB1 2RS *(tel 01223 463690, email peter.ede @mottmac.com)*.

After a coffee break, the second session was opened by **Hayley Fowler** (University of Newcastle), who talked about some work she and **David Archer** had been doing in the Upper Indus Basin, Pakistan. This research focused on the change in hydro-climatic variability and the possible implications for water resources.

Richard Pawson (University of Manchester) brought us back to the Pennines and talked us through some findings from experiments examining how carbon was released from eroded peatland sediments and assessing their role in the fluvial organic carbon flux in the Pennines.

The last speaker, **Sara Alexander** (University of Leeds), gave us an outline of her exciting PhD project, which focuses on the Northern Atlantic Oscillation and its influence on catchment hydrology. She discussed the possibility of regional predictions of water resources and changes in flood risk on decadal or sub-decadal timescales.

The excellent presentations and input from the delegates to the discussion on the important and pertinent topic of the meeting resulted in a stimulating and thought-provoking conference.

Alona Armstrong
School of Geography, University of Leeds

Diary

24th May 2006
BHS Pennines Hydrological Group
"Catchment management" — plus trip to Nafferton Farm & Group AGM
Venue: Newcastle University
Contact: Claire Walsh *(tel 0191 295 5525, email claire.walsh@ncl.ac.uk)*

14th June 2006
BHS National Meeting
"UK contributions to the Prediction in Ungauged Basins Decade (2003-2012)"
Venue: ICE London *(see Meetings)*

15th June 2006
BHS Pennines Hydrological Group
"Erosion and erosion modelling"
Venue: Lancaster University
Contact: John Quinton *(j.quinton@lancaster.ac.uk)*

21st June 2006
BHS South East Section meeting
"Hydrological impacts of wastewater growth in the South East"
Venue: Reading University *(afternoon)*
Contact: Helen Procter *(tel 01372 754201, email helen.procter@atkinsglobal.com)*

21st June 2006
Royal Meteorological Society meeting
"Flash flood forecasting: what are the limits of predictability?" Presidential Address by Professor Chris Collier (University of Salford); "The Flood Estimation Handbook: recent developments in rainfall and flood risk analysis" by Lisa Stewart (CEH, Wallingford)
Venue: Zoological Society of London
Time: 2 p.m. (RMetS AGM at 4.30 p.m.)
Contact: Nick Chappell *(01524 593331)*

30th June – 1st July 2006
IAHS-UNESCO Kovacs Colloquium
"Frontiers in Flood Research"
Venue: UNESCO HQ, Paris
Contact: Pierre Hubert *(http://iahs.info/conferences/2006Kovacs.htm)*

14th–18th August 2006
International Conference on Riverine Hydroecology, supported by BHS
Venue: Stirling University, Scotland
Contact: Dr David Gilvear *(tel 01786 467840, email d.j.gilvear@stir.ac.uk), www.sbes.stir.ac.uk/riversconference*

10th–13th September 2006
9th National Hydrology Symposium *(and BHS AGM on 10th September)*
"Land management and the protection of the water environment: understanding the impact of new legislation"
Venue: Durham University
Contacts: Prof. Tim Burt *(t.p.burt@durham.ac.uk)*; Prof. Stuart Lane *(s.n.lane@durham.ac.uk).*

13th–15th September 2006
British Soil Science Soc. Annual Meeting
"Soil, vegetation and climate change"
Venue: University of Leeds
Contact: Pippa Chapman *(p.j.chapman@leeds.ac.uk)* or see *www.geog.leeds.ac.uk/conferences/index.html*

20th–22nd September 2006
ERB2006 – European Network of Experimental & Representative Basins
Venue: Luxembourg
email *erb2006@lippmann.lu*, fax +352 470264, web *http://erb2006.lippmann.lu*

26th–28th September 2006
3rd International Symposium on Integrated Water Resources Management
Venue: Bochum, Germany
See *www.conventus.de/water* or contact Mrs Jana Radoi *(tel +49 3641 35 33 221, email water@conventus.de).*

6th November 2006
One-day joint meeting with Geol. Soc.
"Uncertainty in groundwater models: the utility of models for groundwater management" combined with the 2006 Darcy Lecture by Eileen Poeter (USGS)
Venue: Lancaster University Conference Centre; Time: 10.30–16.00
Contact: Prof. Andrew Binley *(tel 01524 593927, email a.binley@lancaster.ac.uk)*

6th–7th November 2006
BHS Postgraduate Symposium *(following on from the meeting above)*
Venue: University of Lancaster
Organisers: Postgraduate students Daniel Kaeser and Toby Krueger
Contact: Dr Andrew Crowe *(tel 01524 510231, email a.crowe@lancs.ac.uk)*

2nd–13th July 2007
XXIVth IUGG General Assembly
"Earth: our changing planet" including an IAHS scientific programme
Venue: Perugia, Italy
See *http://www.iugg2007perugia.it* and *http://www.iahs.info*
The deadline for abstracts of papers for the IAHS Symposia is 31 August 2006.

Nominations needed for the BHS main committee

Three members of the Society's main committee reach the end of their elected terms at the time of the 2006 AGM (to be held in Durham in September). We therefore need to elect a new Hon. Secretary and two other committee members.

Prof. Louise Heathwaite and Suzanne Paget have both completed three years as elected members; Joe Pearce is at the end of his two years as the Society's Hon. Secretary. The Society thrives through the activity of members and being on the committee is an excellent way to become involved. It meets four times a year in London.

Tim Norton joined the Committee in 2005 as an elected member and has since taken on the role of representing younger members of the Society. Tim said, *"I am enjoying my time on the BHS Committee, and have found it to be an interesting, challenging and rewarding experience. The opportunity to influence the future direction of the society, and to tackle issues of concern to hydrologists throughout Britain is important and demanding. I would particularly encourage younger BHS members to consider standing for nomination: we need people with enthusiasm, vision and energy. We need people who can get things done."*

Nomination forms are enclosed with this issue of *Circulation*. Please return completed forms to the Society's Secretary at the ICE (address on the front page) **by 30th June 2006**. Any questions should be addressed to the Hon. Secretary, Joe Pearce *(tel 01903 832082, email joe.pearce@environment-agency.gov.uk).*

Copy deadline for *Circulation* No. 90 6th July 2006