

# **CURRICULUM VITAE**

**of**

**Professor Roger A. Falconer  
DSc(Eng), FREng**



# CURRICULUM VITAE

**NAME** Roger Alexander FALCONER, DSc(Eng), FREng  
**TITLE** Professor of Water Management (Part-time), Cardiff University and  
Director, Roger Falconer Water Consultancy Ltd  
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**DATE OF BIRTH** 12 December 1951  
**NATIONALITY** British (Married with 3 children)

## PERSON PROFILE

I graduated as a civil engineer, have since specialised as an academic in water engineering and management and have acquired over 38 years experience in research and development in practical hydro-environmental engineering. I have managed a Civil Engineering Department (Bradford) and a large research team at three universities. I was a member of the 2008 UK Research Assessment Exercise (RAE 2008) and am Chair of the Civil and Construction Engineering Sub-Panel for the 2014 Research Excellence Framework. I was elected President of the International Association for Hydro-Environment Engineering and Research in 2011. I have published extensively in the field of computational and environmental hydraulics and have delivered keynote and external lectures world-wide. I have worked extensively on providing specialist advice, to industry and government departments, on a wide range of aquatic environmental impact assessment (EIA) projects, both in the UK and overseas; for example, I was recently involved in an international high profile court case (Malaysia v. Singapore, 2003) and in the follow up EIA study. I have also interacted extensively with consulting engineering companies and regulatory agencies, through the provision of hydro-environmental computer models, and have an extensive network of contacts in the field - both nationally and internationally. I have participated extensively in TV and Press interviews, on a wide range of topics, most notably: the Severn Barrage, flooding, water security etc. (<http://news.bbc.co.uk/1/hi/sci/tech/8628832.stm>).

## KEY ACHIEVEMENTS

- *Elected Fellow of The Royal Academy of Engineering (1997)*
- *Elected Fellow of The City and Guilds Institute of London (1997)*
- *Elected Fellow of The Learned Society of Wales (2011)*
- *Elected President of Int. Assoc. for Hydro-Environment Eng. and Research (2011-15)*
- *Awarded Royal Academy of Engineering Silver Medal (1999)*
- *Awarded Ippen Award by International Association for Hydraulic Research (1991)*
- *Awarded Hai He Award of Honour by Tianjin Municipal Government - China (2004)*
- *Appointed Professor of Water Engineering at Bradford University (1986)*
  - *Head of Department of Civil and Environmental Engineering (1994-97)*
  - *Responsible for an operating budget of £1.9M per annum and 37 staff*
  - *Dept. Achieved 5A and 5C in 92 and 96 Research Assessment Exercises (RAE)*
  - *Dept. Achieved 7<sup>th</sup> ranking in Times League of Civil Engineering Depts (1997)*
- *Appointed Professor of Water Management at Cardiff University (1997)*
  - *Post sponsored by Hyder Consulting (1997-00) and CH2M Group (2000-15)*

- *Dept. Achieved 1<sup>st</sup> ranking in Times League of Civil Engineering Depts (2001)*
- *Research Co-ordinator for Civil Engineering - achieving 5\*A (top score) in 2001 RAE*
- *Research Co-ordinator for Civil Engineering - achieving 3<sup>rd</sup> ranking in 2008 RAE*
- *Unit of Assessment achieved top ranking for Civil Engineering in REF 2014*
- *Developed hydro-environmental software tools acquired by over 40 companies*
- *Directed two Research Centres and managed research grant income exceeding £11.7M*
- *Consultant to industry and government departments on over 100 EIA projects*
- *Published over 450 book chapters, journal and conference papers and technical reports*
- *Over 2900 Scopus citations and 32 h-index (Google Scholar: > 5700 cites and 45 h-index)*
- *Delivered invited lectures to over 480 institutions or societies in 22 countries*
- *Elected to Council of ICE, IAHR and CIWEM and served on over 70 committees*
- *Served on Scientific Advisory Committee of over 90 international conferences*
- *Participated in numerous TV and press interviews (BBC, ITV, CNN, Times, Guardian etc.)*
- *Expert for Malaysia in ITLOS Malaysia v Singapore Land Reclamation Case (2003)*
- *Co-Chair Group of Experts for EIA study of Singapore land reclamations (2004)*
- *Member UK Research Assessment Exercise Civil Engineering Sub-Panel (2006-08)*
- *Chair UK Research Excellence Framework Civil Engineering Sub-Panel (2010-14)*
- *Member Welsh Assembly Government Flood Risk Management Committee (2006-13)*
- *Member UK Government DECC Expert Panel for Severn Estuary Tidal Power (2008-10)*
- *Initiated change of name of IAHR from 'Hydraulics' to 'Hydro-Environment' (2009)*
- *Presented evidence on Severn Barrage to Commons Energy and Climate Change Com. (2013)*

#### HIGHER EDUCATION

1973	BSc(Eng)	King's College, University of London
1974	MSCE	University of Washington, USA
1976	PhD, DIC	Imperial College, University of London
1992	DEng	University of Birmingham
1994	DSc(Eng)	University of London

#### CAREER SUMMARY

2016-date	Director, Roger Falconer Water Consultancy Ltd. Company specialises in Water Engineering and Environmental Management, including: Flood Risk Modelling and Management, Marine Renewable Energy (Tidal Power, Barrages and Lagoons), Modelling of Flow, Water Quality, Sediment Transport etc. in Rivers, Estuaries and Coastal Waters; Audit assessments for Environmental Impact Assessment (EIA) and Water Framework Directive (including Bathing Water compliance) projects; Provision of Water Engineering and Environmental Management expertise as Expert Witness for Public Inquiries, National and International Court Cases and Tribunals.
1997-date	Professor of Water Management (Part-time since 2016) - sponsored by Hyder, 1997-00 and CH2M and Halcrow 2000-15, School of Engineering, Cardiff University; Founding Director, Hydro-environmental Research Centre HRC (1997-14) - Responsible for strategic planning, leading research projects and co-ordinating research activities of 8 academic staff and typically 30 research associates and research students in Centre; Leader, Institute of Environment and Sustainability (2003-12) - Responsible for strategic planning and co-ordinating research activities of 12 staff and typically over 20 research staff in Institute; Deputy Leader, Energy and Environment Research Theme (2016-date).
2011-15	President, International Association for Hydro-Environment Engineering and Research.
1987-97	Professor of Water Engineering, Dept. of Civil Engineering, University of Bradford; Deputy Head (1987-93), Head of Department (1993-97) and Founding Director of Environmental Hydraulics Research Centre (1987-97).
1977-86	Lecturer in Hydraulics, Dept. of Civil Engineering, University of Birmingham.

1976-77 Assistant Engineer, Mott MacDonald, Consulting Engineers, Cambridge  
 1975-85 Course Tutor in Engineering (part-time), Open University, London Region (1975-77) and Midlands Region (1978-85).

#### PROFESSIONAL QUALIFICATIONS AND LEARNED SOCIETY FELLOWSHIPS

1983 Chartered Engineer - CEng  
 2004 Chartered Environmentalist - CEnv  
 2009 Chartered Water and Environmental Manager - C.WEM  
 1990 European Engineer - EurIng  
 1997 Fellow, The Royal Academy of Engineering (RAEng) - FREng  
 1997 Fellow, The City and Guilds of London Institute - FCGI  
 2011 Fellow, The Learned Society of Wales - FLSW  
 1992 Fellow, The Institution of Civil Engineers (ICE) - FICE (MICE -1983)  
 1990 Fellow, Chartered Inst. of Water and Environmental Management - FCIWEM  
 1993 Fellow, American Society of Civil Engineers (ASCE) - FASCE  
 1992-11 Fellow, The Royal Society for the Encouragement of Arts - FRSA  
 1983 Member (President 2011-date), International Association for Hydro-Environment Engineering and Research (IAHR)  
 1995 Member, International Water Association (IWA)

#### AWARDS

##### Main:

1999 **Royal Academy of Engineering Silver Medal** (Awarded for “Outstanding and demonstrated personal contributions to British engineering leading to market exploitation”)  
 1991 **International Association for Hydraulic Research Ippen Award** (Awarded for "Outstanding contributions in area of computational flow modelling of coastal and estuarine waters and environmental problems")  
 2003 **Tianjin Municipal People’s Government (China) Hai He Award of Honour** (Awarded in “Appreciation of Support for Development of Tianjin Municipality”)  
 2007 **Institution of Civil Engineers Robert Alfred Carr Prize** (Awarded for paper published in Proceedings of ICE, Vol.159, WM1, March 2006)  
 2003 **Institution of Civil Engineers Robert Alfred Carr Prize** (Awarded for paper published in Proceedings of ICE, Vol.154, WME2, June 2002)  
 1994 **Institution of Civil Engineers Telford Premium** (Awarded for paper published in Proceedings of ICE, Vol.97, No.4, Nov. 1993)

##### Others:

2014-15 Cardiff School of Engineering Teacher of the Year Awards (Awarded for Excellence in Teaching in the category of ‘Large Class Teaching’) - also awarded 2005-06, 2007-08  
 2006 International Water Association Referees Prize for Water Research  
 1973-74 Thomas and Elizabeth Williams Scholarship  
 1973-74 Baker Fellowship Award  
 1971-73 Civil Engineering Scholarship Trust Award

#### PRESTIGE AND KEYNOTE LECTURES

##### Prestige Lectures include:

Royal Society Copus Lecture, Bradford (1989), IAHR Ippen Lecture, Madrid (1991), ICE Vernon Harcourt Lecture (1992), IT and Imaging Lecture, Science Museum, London (1995), British Association Presidential Lecture, Cardiff (1998), European Dredging Association 10<sup>th</sup> Anniversary Lecture, Brussels, Guest Professorship Lecture, Tianjin (2005), 35<sup>th</sup> Idris Jones Memorial Lecture, Energy Institute, Cardiff (2008), RAEng Briefing Lecture on Severn Barrage, London (2008), Council of the Academies of Engineering, Technology and Science, Delft (2008), European Council of Applied Sciences, Technologies and Engineering, London (2008), RAEng Briefing Lecture on Extreme Flood Events, London (2009), Cheltenham Science Festival, Cheltenham (2010), Parliamentary and Scien-

tific Committee, London (2010), Delta Science Programme, San Francisco (2013), ICE Dugald Clerk Lecture (2015).

**Keynote Lectures delivered at international conferences** include (see publication list):

Shanghai (1987), Southampton (1991), Washington (1993), San Francisco (1993), Pusan (1995), Yosu (1995), Hong Kong (1998), Lemnos (1999), Bangkok (1999), Las Palmas (2000), Cardiff (2001), Singapore (2001), Beijing (2002), Ramsar (2002), Tianjin (2002), Tehran (2004), Penang (2004), Hong Kong (2004), Seoul (2005), Kuwait (2005), Madras (2006), Kuching (2007), Edinburgh (2010), Athens (2010), Muscat (2010), Penang (2011), Munich (2012), Hamburg (2012), Korea (2012), Florida (2012), Chennai (2013), Hong Kong (2014), Singapore (2015), Slovenia (2016)

## **MAIN EXPERIENCE**

### **Professional:**

- Responsible for undertaking and directing research contracts, in excess of £11.7M to three universities, on a wide range of hydro-environmental modelling studies, including:- development, refinement and application of hydro-environmental models for predicting a range of processes in river, estuarine and coastal waters (including flood inundation and hazard mapping); modelling disinfection in water treatment works; groundwater modelling; wetland management and development of industrial models (e.g. iSIS-2D, marketed by CH2M); and design of demountable flood defences. Research interests also include global water security.
- Supervised over 70 research fellows, associates and students (57 completed PhDs), and collaborated with over 30 overseas visiting academics from 15 countries.
- Responsible for developing FASTER (1D), DIVAST (2D) and TRIVAST (3D) computer models for predicting flow, water quality and sediment transport processes in coastal, estuarine and inland waters, and providing these models to over 60 academic institutions in 22 countries for research.
- Produced to-date: 7 edited books, 10 book chapters, over 400 journal and international conference papers and over 75 technical reports. Delivered over 470 invited lectures to institutions or learned societies in 22 countries.
- Organised and lectured on specialist short courses and conferences, totalling over 3,000 delegate days, with two conferences opened by HRH The Princess Royal, including Hydroinformatics 2002 which attracted over 300 delegates from 50 countries. Also served on advisory committee of over 100 international conferences - 12 as Chairman.
- Served on over 80 professional committees, learned societies, professional organisations and editorial boards, including: RAEng, RoySoc, ICE, CIWEM, ASCE, IAHR, IWA, EPSRC and Environment Agency.

### **Management:**

- Responsible for management of Department of Civil and Environmental Engineering at Bradford (1993-97), consisting of 19 academic staff, 18 support staff, over 300 undergraduate students and over 40 postgraduate students. Department had annual net income of £1.9m and an operating budget in excess of £1.2m. Department rated 5C (5\* top rating) in 1996 HEFCE RAE, rated 20 (out of 24) in 1996 HEFCE Teaching Quality Assessment Exercise and ranked 7<sup>th</sup> in The Times League table of Civil Engineering Departments in 1995. Department rated 5A and 3 in 1992 and 1989 RAEs, while primarily responsible for managing Department's research activities.
- Responsible for co-ordinating research and preparing 2001 RAE submission for Civil Engineering Unit of Assessment at Cardiff University. Awarded 5\*A rating in 2001 RAE – first time this top grade has been awarded for a civil engineering unit. Department ranked 1<sup>st</sup> in The Times League table in 2001 and 2002.
- Responsible for leading:- Institute of Environment and Sustainability - IES (2003-12), and directing Hydro-environmental Research Centre - HRC (1997-14) and Environmental Hydraulics Research Centre - EHRC (1987-97), with latter two including research grants and contracts exceeding £10.24m in total value from research councils, EU, industry, government departments and public bodies. The HRC provided hydroinformatics software tools to ExCal Ltd - a Welsh SME

(Small to Medium Enterprise) - who won an Innovation Network Award (2002) for success in “using software tools in water environmental modelling projects”.

- Responsible for supplying DIVAST and TRIVAST hydro-environmental computer models to over 40 consulting engineering companies, water companies and government departments. Acted as consultant to these companies and organisations in applying models to over 100 EIA projects worldwide.
- Responsible for developing numerical engine for flood inundation prediction for iSIS-2D model, used and marketed by CH2M Group Ltd. and Technical Consultant to MarCon International Ltd, an international consulting company providing advanced modelling capabilities in the marine and freshwater environments.

#### **MAIN ACADEMIC AND LEARNED SOCIETY APPOINTMENTS**

2015-date	Founder and Advisory Board Member, Journal of Eco-hydraulics
2014-date	Honorary Professor, Dept of Civil and Env. Eng., Hong Kong Polytechnic University
2014-date	External Assessor, University of Malaysia, Malaysia
2014-date	Member, RAEng ICT Community of Practice Committee
2013-date	Guest Professor, Dept. of Civil Engineering, Sichuan University, Chengdu, China
2013-date	Founding Advisory Editor, J. of Applied Water Engineering and Research, IAHR
2013-date	Honorary Professor, China Institute of Water Resources and Hydropower Research
2012-date	Member, Internal Advisory Board, International Journal of Renewable Energy Research
2011-12	Member, ICE State of the Nation Report - Panel for Water
2011-15	President, International Association for Hydro-Environment Engineering and Research
2010-14	Member, Research Excellence Framework REF2014, Main Panel Committee B
2010-14	Chair, REF2014, Sub-Panel 14 Civil and Construction Engineering
2010-15	Chair, IAHR Task Force on Global Water Security
2009-12	External Examiner, BEng courses, University of Malaysia, Malaysia
2009-13	Member, Panel of Referees for Royal Society RAEng Newton Fellowships
2009-14	Member, Royal Society Brian Mercer Awards Panel
2008-11	External Assessor, Internal Promotions, University of Malaya, Malaysia
2008-12	Member, Royal Academy of Engineering, Engineering Policy Committee
2008-09	Member, Royal Academy of Engineering, Pro-Active Nominations Committee
2007-08	Specialist Advisor, Research Assessment Exercise 2008, Earth Sciences Sub-Panel
2007-11	Member, Institution of Civil Engineers, Network and Events Panel
2007-12	Editorial Board Member, Estuarine, Coastal and Shelf Science
2007-date	Editorial Board Member, Journal of Hydro-environmental Research
2006-13	British Council - Specialist Advisor Delphi–EAP Partnership
2006-10	External Examiner, MSc courses, Heriot Watt University and University of Glasgow
2006-date	Editorial Board Member, Eng. Applications of Computational Fluid Mechanics
2006-08	Member, Research Assessment Exercise 2008, Civil Engineering Sub-Panel
2005-08	External Examiner, MEng/BEng courses, University of Hong Kong, Hong Kong
2005-date	Guest Professor, Dept. of Mechanics, Tianjin University, Tianjin, China
2004	Theme Leader, EPSRC UK Celebration of Research Exhibition, London
2003	Research Reviewer, School of Engineering, University of Nottingham
2003-08	External Examiner, Open University, Milton Keynes
2003-06	Member, RAEng Committee for Research and Secondment
2002-05	Lead Assessor, RAEng Research in Civil Engineering
2002-03	Member, RAEng Engineering Committee
2002-date	Founding Editor, Journal of River Basin Management, IAHR
2003-07	Founding Editor, Journal of Water Management, ICE Proceedings
2001-03	Editor, Water and Maritime Engineering, ICE Proceedings
2000-04	Elected Member, Institution of Civil Engineers Council
2000-03	Member, Royal Academy of Engineering, Membership Panel
1999-06	Subject Advisor, British Council Education Links Scheme
1999-07	Elected (1999-03) and Co-opted (2003-07) Member, IAHR Council

1999-02 External Examiner, National University of Ireland, Galway  
 1998-03 Advisor, Association of Commonwealth Universities Fellowships  
 1998-04 Founding Editor, Journal of Hydroinformatics, IWA  
 1997-02 Visiting Professor, Dept. of Civil Engineering, University of Bradford  
 1997-03 Associate Editor, Advances in Water Resources Series  
 1997-03 Elected Member, Chartered Inst. Water and Environmental Management Council  
 1997-99 President, British Association, Engineering Section  
 1996-00 External Examiner, MEng/BEng courses, University of Liverpool  
 1995-99 External Examiner, MEng/BEng courses, Queen's University, Belfast  
 1995-96 Chair, Institution of Civil Engineers Yorkshire Association  
 1994-date Member, EPSRC Peer Review College  
 1994-01 Associate Editor, Journal of Hydraulic Engineering, ASCE  
 1993-97 Honorary Professor, School of Life Sciences, University of Hull  
 1992-96 External Examiner, BEng courses, University of Ulster  
 1991-92 Chair, Chartered Inst. Water and Env. Man. Tyne and Humber Branch  
 1989-90 Visiting Professor, Dept. of Civil Engineering, Univ. of Newcastle upon Tyne  
 1987-13 Advisory Professor, Dept. of Environmental Engineering, Tongji Univ., Shanghai

#### MAIN ADVISORY AND PROFESSIONAL APPOINTMENTS

2016-date Member, Government Office, National Flood Resilience Science Advisory Group  
 2015-date Member, RAEng Queen Elizabeth Engineering Prize, Search Committee  
 2012-14 Member, Regional Committee and Expert Panel of Hafren Power Ltd.  
 2010-12 Advisor, Corlan Hafren Ltd - consortium of companies to develop Severn Barrage  
 2010-11 Member, Mersey Tidal Power - Design Advisory Group  
 2009-10 Member, Global Water Security Steering Group (Reporting to Govt. Chief Scientist)  
 2009-10 Member, Cardiff City Vision Forum - Severn Tidal Monitoring Group  
 2008-10 Member, Expert Panel for Severn Estuary Tidal Power Study, Govt. Dept. BERR  
 2008-09 Member, Severn Tidal Power Strategic Environmental Assessment Steering Group  
 2008-10 Chair, Marine Renewable Energy Task Group for Wales  
 2007 Expert Witness, for EA at Public Inquiry, Preston Sewage Works, Southport  
 2007-13 Member, Environment Agency Wales EU Water Framework Directive Committee  
 2006-date Member, NRW Flood Risk Management Wales Committee, Welsh Gov. representative  
 2005 Advisor, Kuwait Institute for Scientific Research (KISR), Environment Division  
 2004-05 Member, Group of Experts Singapore Land Reclamation Study (ITLOS)  
 2003 Expert Witness, Internat. Tribunal for Law of Sea case, Malaysia v. Singapore  
 2003-06 Advisor, Marine Modelling Centre, Martin Ryan Institute, Galway, Eire  
 2003-05 Expert Advisor, Ministry of Foreign Affairs, Malaysian Government  
 2003-04 Expert Advisor, Department of Irrigation and Drainage, Malaysian Government  
 2001-10 Technical Consultant, MarCon Computations International Ltd, Galway, Eire  
 2002-05 Technical Director, Floodguards International Ltd, Wokingham  
 2000-date Consultant, Halcrow Group Ltd, (Consulting Engineers)  
 1999-date Consultant, Tianjin Municipal Government, China  
 1998-07 Member, Environment Agency Estuaries Advisory Committee  
 1998-04 Board Member, Advanced Research Partnership  
 1997-98 Advisor, Environment Agency on Anglian Flow Forecast Modelling System  
 1997-00 Consultant, Hyder Consulting Ltd, (Consulting Engineers)  
 1996-98 Member, Environment Agency Humber Estuary Advisory Committee  
 1995-96 Advisor, US Navy Environment Division on Hydro-Ecology of Mugu Lagoon  
 1994-97 Associate Advisor, British Council, Development and Training Services  
 1995 Expert Evaluator of Danish Hydraulic Institute, for Danish Government  
 1993-94 Advisor, BP Chemicals Ltd., Humber Estuary EIA Study  
 1993-94 Advisor, British Nuclear Fuels Ltd., Sellafield and Chapelcross EIA Studies  
 1993 UN Expert on Mission, Central Water and Power Research Station, India  
 1992-93 Advisor, Southern California Edison, USA, Wetland Management Project  
 1987-92 Advisor, China Nat. Env. Protection Agency, Shanghai Sewerage Project

1992 Expert Witness, for NRA at Public Inquiry, Integrated Treatment Centre, Hull  
1991 Advisor, EU for MAST Research Programme

### KEY BIOGRAPHICAL ENTRIES

1998-date *Who's Who* (pub: A & C Black, London)  
1998-date *People of the World* (pub: Debrett's Peerage Ltd, London)  
1998-date *Who's Who in Science and Engineering* (pub: Marquis Who's Who, USA)  
2002-date *Directory of International Biography* (pub. Melrose Press Ltd, Cambridge)

### WEB PROFILE LINKS

[Profile on University Website](#)

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[Profile on Researcher ID](#)

[Profile on Google Scholar](#)

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### Key to Abbreviations

ASCE	American Society of Civil Engineers
CGI	City and Guilds of London Institute
CIWEM	Chartered Institution of Water and Environmental Management
EPSRC	Engineering and Physical Sciences Research Council
IAHR	International Association for Hydro-Environment Engineering and Research
ICE	Institution of Civil Engineers
IWA	International Water Association
NERC	Natural Environment Research Council
RAE	UK Research Assessment Exercise
RAEng	Royal Academy of Engineering
RoySoc	Royal Society
RSA	Royal Society for the encouragement of Arts