JBA Trust Limited

Annual Report 2015-16

Charity Number: 1150278

Company Number: 07840801

The JBA Trust is a charity that enhances understanding and management of risks in the water environment by enabling research, education and training

We work with leading academic researchers, NGOs, charities and the JBA Group of companies in four key areas:

Providing training and education in schools and in the water management community

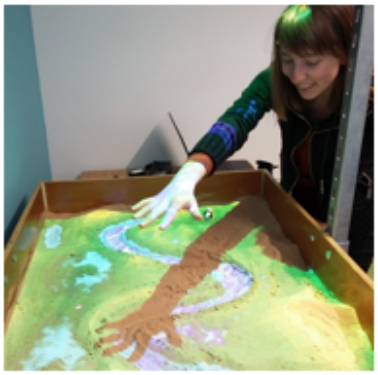
Facilitating collaboration between academia and industry to deliver high quality scientific research

Supporting post-graduate education by providing technical expertise and financial bursaries for MSc and PhD studentships

Publishing and disseminating research outputs, enabling knowledge exchange and sharing good practice

Highlights of 2015-16

13 collaborative research projects delivered



10 externally peer reviewed publications

650 people learnt more about river and coastal flood risk with **5** physical models at **13** events

30,000 views of our hydraulic flume and wave tank videos (since posted in 2013)

Postgraduate support

6 MSc project placements and technical guidance

8 scholarships and bursaries awarded

Research grants helped support **6** PhD students

2,184 hours of research and education activities funded

Research partnerships with **8** universities

Contribution of scientific advice to UK government

Director's Report

> " This year, our new demonstration models have helped us support more public events than ever, whilst our scientific research has contributed advice to government."

On behalf of the Trustees, I am pleased to present our annual report on our activities in 2015-16.

This year we have continued and expanded our work on research, education and skills in the field of water management. Our effort continues to fall broadly across educational, public engagement and research activities, which overlap in some of our projects.

We have seen the benefits of our substantial investment in a larger demonstration hydraulic flume model. The new flume has been built into a specially customised van, helping us travel to more events and enable more people to see and learn about principles of hydraulic design in river channels, without needing to delve into a text book. We have also ventured into new technologies for explaining topical issues in water management with our augmented reality sandbox.

With five years now behind us, I am delighted to see more of our earlier research projects reaching publication stage, including our own independent research and collaborations with academic partners. We have increased the number of research outputs on our web site and seen a growing number of papers come out in peer reviewed journals with JBA Trust co-authorship.

This commitment to high quality research and knowledge exchange helped us contribute to the Government's Scientific Advisory Group to the National Flood Resilience Review, published in September 2016.

We have, of course, continued the JBA Trust's support for postgraduate training and research through sponsorship of MSc and PhD students, with some exciting new projects starting this year.

We have also again supported other third sector organisations including the British Hydrological Society (through sponsorship of student bursaries), CIWEM (providing support for public meetings) and the British Association for Nature Conservation (co-hosting a twitter debate on natural flood management).

All of this has been helped by our new JBA Trust website, which is enabling us to communicate more effectively about what we do, and how we help others.

We would like to thank all the organisations and individuals who have worked with us, not least the students and early career researchers who we have supported. We are grateful for a continued commitment to funding the JBA Trust from the JBA Group companies and their Directors.

Rob Lamb, Director

Contents

1 Our purpose and activities

Our aim is to enhance understanding and management of risks in the water environment by enabling research, education and training.

Our activities for the year reflect the Trustees' consideration of the Charity Commission's guidance on public benefit. The major areas of activity are:

- Providing water management training and education in schools and in the flood risk management community;
- Support for post-graduate education through provision of technical expertise and financial bursaries for MSc and PhD studentships;
- Facilitating collaboration between academia and industry to deliver scientific research that improves society's understanding and management of environmental risks and resources;
- Publication and dissemination of research outputs, enabling knowledge exchange and sharing best practice;
- Sponsorship of relevant conferences to enable students in higher education or early career professionals to attend.

This report reviews the activities of the JBA Trust over the past year and how the outcomes of our work have delivered public benefit.

2 Environmental education and training

JBA Trust supports a wide range of activities aimed at encouraging students at schools and universities across the country to develop or enhance their interests in water and environmental management topics, which could ultimately lead them to pursue careers in the field. Our education and training activities also extend to the wider community, and to flood risk management professionals.

2.1 Physical models

We continued to develop physical models of rivers and coasts which are used to raise awareness, and demonstrate the technical principles, of flood and coastal risk management. The demand for these models at schools, universities, and public engagement events led us to commission a new, larger scale flume which can be transported and housed in custom built van.

We also started developing an augmented reality sandbox, an interactive visualisation tool that shows how topography affects water moving through a catchment, based on a prototype built as part of an MSc project that we supported with Lancaster University.

The Trust now has six physical models including: two hydraulic flumes (one in a van and one trailer mounted), a mini-flume, two wave tanks and an augmented reality sandbox. In total, we reached over 650 people during 2015-16 and the key activities for each physical model are detailed below.

Demonstration flume

Our largest hydraulic flume shows the flow of water in a simple channel, driven by a system of re-circulating pumps, and features scale models of typical engineered structures. We have built a variety of structures

that can be introduced to the channel, including weirs, bridges, culverts, debris screens, a fish pass and a hydrobrake.

Observers can see in real time how these different structures interact with the flow and what happens under flood conditions. The flume is approximately 3 metres long and is housed and transported in the van along with our other river and coastal demonstration models.

Trailer flume (trailer mounted)

This flume is the first mobile demonstration model built by JBA Trust. It shows the flow of water in a simple channel, driven by a system of re-circulating pumps and also features scale models of typical engineered structures such as weirs, bridges, culverts and debris screens to show how different structures interact with the flow and affect flood risk.

The hydraulic flume demonstration video is now available on YouTube and has been watched by over 30,000 people since it was posted in 2013.

'Mini' flume

The 'mini' flume also demonstrates the interaction of engineered structures with flow in a channel but is more portable than the trailer flume and can be set up inside, for example in a classroom or office.

The mini flume was built in July 2015 and has provided an excellent learning resource for flood awareness activities and public events, including a 'World Rivers Day' celebration event in Bradford City Centre in September 2017.

Figure 1. The mini-flume and custom built van at the World Rivers Day event in Bradford.

Wave tank

The portable wave tank demonstrates the performance of coastal defences under different wave conditions. The first prototype was developed with a team of PhD students from the Fluid Dynamics Centre for Doctoral Training (CDT) at the University of Leeds and the Coastal Risk Management team at JBA Consulting in August 2015.

This year, we produced a short educational video which shows the effectiveness of different types and combinations of coastal defences, for example vertical and recurved sea walls, on the potential for overtopping and flood risk. This video is freely available on the JBA Trust YouTube channel: https://www.youtube.com/watch?v=3yNoy4H2Z-o

Figure 2. Dan Rodger presents a short video tutorial on coastal flood risk using the wave tank.

Augmented reality sandbox

The sandbox is a very interactive visualisation tool that shows how topography affects water moving through a river catchment. We encourage people to shape the sand to create their own catchments, which are then 'augmented' in real time by a projector which shows a coloured elevation map and contour lines.

Participants can 'make it rain' through gestures and then watch how the virtual water flows through the catchment in real time and explore how changes in land use affect flooding.

Our first prototype was developed with students at the Lancaster Environment Centre as part of their MSc project in 2015. It is based on the specifications shared by the University of California, Davis who have created an excellent library of online resources.

We are now developing new functionality in the software to enable us to better show concepts like natural flood management, including the impact of permeability, roughness and storage on flood risk. Although still a prototype, the sandbox has already helped us support public engagement meetings and conferences.

2.2 STEM (Science, Technology, Engineering and Maths) activities

Water Engineering Workshop

As part of a series of events across the country to celebrate National Women in Engineering Day (23 June), JBA Trust organised an afternoon of activities for 80 students. Activities included wave tank and hydraulic flume demonstrations, an interactive augmented reality sandbox workshop and 'gamer' demonstrations of metocean forecasting models, supplied by JBA Consulting for our use.

The workshops showed how engineering solutions help reduce flood risk from rivers and the sea and the role of weather and sea conditions in operating offshore renewable energy. The event was also supported by the Environment Agency, Lancaster University and JBA Consulting. Students had the opportunity to talk informally with female senior staff in JBA and the Environment Agency about working in the engineering sector, and obtained advice on engineering careers.

Figure 3. Students at Skipton Girls High School 'make it rain' in the augmented reality sandbox to learn about topography and flood risk.

Geographical Information Systems (GIS) in Schools

JBA Trust has helped to share industrial expertise with school students through a variety of routes including class workshops, seminars and lectures.

This year, we continued our support for GIS workshops for students and teachers at Tarporley High School in Cheshire. Mike Williamson, a Senior GIS Analyst at JBA Consulting, shared his GIS expertise and gave students an insight into how GIS can be applied to environmental challenges in the real world.

The JBA Trust funded the school's subscription to ArcGIS Online enabling students, teachers and industry to remotely access ArcGIS. This allows students to access GIS at relatively little cost and industry partners can add data and work with the schools to apply GIS to real world examples.

3 Support for students in higher education

There are many academic subjects that touch upon our core interests in environmental risks and resources. Whilst undergraduate courses such as Geography and Environmental or Physical Sciences are important, the relevant specialist training often comes into greater focus at Masters or PhD level. JBA Trust therefore emphasises support for students and projects at this level.

3.1 MSc projects

JBA Trust helps provide students with placements, technical expertise and access to software resources and case study data, as well as offering a platform for them to share highlights from their research projects. The students we help have gained insight into how methodologies and techniques are applied in industry and have an opportunity to see how they will be able to use their skills in a future career.

In 2015-16, the JBA Trust helped six students from the Universities of Leeds, Lancaster and East Anglia. The students worked with JBA Consulting staff on a wide range of MSc projects including:

- *The development of an Augmented Reality (AR) Sandbox: Investigating how the sandbox can be used to demonstrate and aid understanding of concepts relating to risk*
- *Investigating the application of the Augmented Reality Sandbox as an educational tool*
- *How comprehensive is current legislation surrounding sediment trace metal contamination and how might it be improved to enhance sustainability?*
- *Assessing the integration of ecosystem services into decision-making for implementing natural flood management measures*
- *Identification and Analysis of 'Quick-win' Sites: Achieving Hydraulic Habitat Gains in Reach of Sluice Gates*
- *Application of clustering techniques to the validation of simulated regional flood events generated by the conditional exceedance model*

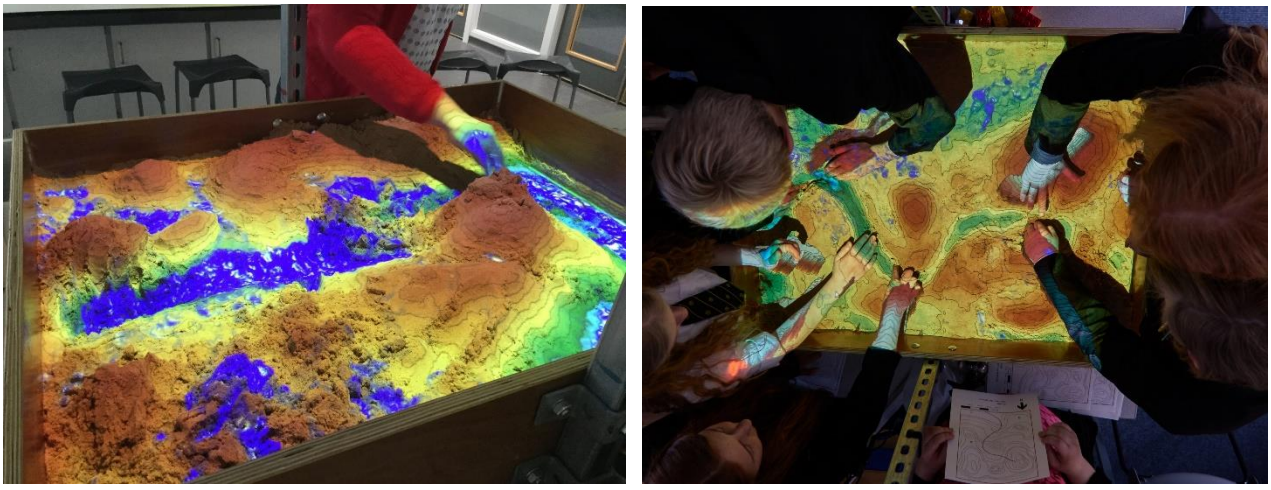


Figure 4. Rebecca Harding and Jodie Rogers from Lancaster University built the JBA Trust's first prototype Augmented Reality Sandbox as part of their MSc dissertation project.

3.2 PhD projects

Our collaboration with universities across the UK as part of our wider research programme enables us to support research students in developing advanced skills, and delivers high quality research that helps enhance the understanding of a wide range of risks in the environment. The students and PhD projects we supported in 2015-16 are summarised below:

- Peter Metcalfe, Centre for Global Eco-Innovation at Lancaster University *(Modelling nature based approaches to flood management at a catchment scale).*
- Zora van Leeuwen, University of Leeds *(Impact of woody debris on hydro-geomorphological processes and flood risk)*
- Eleanor Pearson, University of Leeds *(Multi-scale sediment and debris impacts of NFM measures)*
- Ashley Buchan, University of Edinburgh *(Impact of a Water Level Management Plan on the Humberhead Wetlands)*
- Tom Padgett, University of Leeds *(Hydrodynamically- and ecologically-driven design of weirs, hydropower plants and fish passes)*

Details of the PhD research we sponsor is published at: www.jbatrust.org/who-we-help/phd-students/

3.3 The British Hydrological Society and JBA Trust Studentship Awards

Specialist skills are needed to manage the water environment. In 2015-16 we continued our partnership with the British Hydrological Society (BHS), a registered charity, to support students working towards relevant MSc qualifications who will go on to play a vital part in the future management of the water environment.

Now in its sixth year, the Studentship Award aims to encourage talented students wishing to pursue development of their academic experience and qualifications in this sector. Six bursaries were awarded to students applying for a hydrology related MSc and the publicity generated a significant amount of new traffic to our website.

The web-based application management system that we developed in 2014 continued to work very well and enabled us to coordinate the assessment process with the BHS effectively.

3.4 Flood and coastal risk management scholarships

The challenges of more frequent extreme weather and new flood risk responsibilities mean that there is a growing need for skilled water and environmental risk management professionals.

In recognition of this, the JBA Trust awarded two scholarships in 2015-16 to fully fund the tuition fees for Lancaster University's Flood and Coastal Risk Management Postgraduate Certificate course. The successful recipients were Daniel Turner, Project Officer at the Yorkshire Dales Rivers Trust and Peter Burrows, Development Officer at Gateshead Council.

4 Science and research

One of the aims of JBA Trust is to facilitate collaboration between academia and industry and deliver scientific research that improves society's understanding and management of risks in the water environment. We publish and disseminate the resulting research outputs, enabling knowledge exchange and sharing best practice. In 2015-16 we worked with universities, research institutions and organisations and are pleased to report on the good progress of the following collaborative research projects.

4.1 Zurich PERC report

Partners: Zurich Insurance Group, JBA Consulting

Following the severe flooding after Storm Desmond (December 2015 and early 2016) that caused significant damage and disruption in the north of England and parts of Scotland, we worked with Zurich to review the response to flooding using Zurich's PERC (post event review capability) methodology.

Outputs: Our report detailed first hand experiences of the flooding in Cumbria and made recommendations for building greater flood resilience based on these experiences. The resources and profile of the Zurich Insurance Group gave our jointly-authored report significant publicity and it was widely disseminated. Available at: http://www.jbatrust.org/news/review-of-flood-response-in-cumbria-following-storm-desmond/

4.2 Attribution of winter 2013-14 flooding to anthropogenic climate change

Partners: Oxford University

JBA Trust, supported by JBA Risk Management Ltd., contributed to a study led by Oxford University to examine the possible contributions from climate change caused by human activities to the likelihood of flooding in winter 2013-14, or similar events.

Outputs: Paper published in Nature Climate Change and accompanied by commentary on the JBA Trust website reflecting discussion with the press and interested parties within the public sector and insurance industry. Available at: http://www.jbatrust.org/news/human-influence-climate-2014-southern-england-winter-floods-impacts/

4.3 National Flood Resilience Review (NFRR)

The Government's National Flood Resilience Review aimed to improve the national understanding of flood risk in England. Through the Scientific Advisory Group, JBA Trust carried out analysis for the NFRR with support from JBA Consulting through a Knowledge Transfer Partnership (KTP) with Lancaster University. The analysis examined the meteorological and hydrological evidence underpinning the review and built on statistical methods and data analysis developed as part of the KTP (see section 4.4).

Outputs: The Government's National Flood Resilience Review was published on 8 September 2016, with a short commentary and links on our website at: http://www.jbatrust.org/news/scientific-evidence-supporting-the-governments-national-flood-resilience-review/

4.4 UK multi-scale spatial/temporal rainfall and river flow extremes (KTP)

Partners: Lancaster University, Innovate UK, JBA Consulting

This two-year Knowledge Transfer Partnership (KTP) is between JBA Consulting and Professor Jon Tawn at Lancaster University. JBA Consulting has allowed JBA Trust to use the project outputs to support

knowledge exchange, and the scientific outputs were a key component of the significant contribution to the NFRR analysis (see section 4.3).

Outputs: The post-doctoral researcher, Ross Towe, has generated a scientific data set for use in further research on spatial extremes in hydrology and an alternative flood hydrology event set for use in risk model comparisons or development. The datasets will be accompanied by a package of documentation and guidance notes. Ross has also produced a variety of outputs, including posters, papers and blogs which are all available at: http://www.jbatrust.org/how-we-help/research/rivers-and-coasts/improving-statistical-models-of-large-scale-flood-events/

4.5 Bridge scour elicitation workshop

Partners: Bristol University

JBA Trust contributed to a proposal by Bristol University to the NERC PURE programme for an international experts' workshop on bridge scour on 16-17 February 2015. Much of the analysis and generation of outputs from this work took place in FY 2015-16, however. The workshop brought together experts from around the world with different perspectives and expertise in scour management or research. Through a formal expert elicitation process, the workshop explored the group's understanding of uncertainties about scour risk.

Outputs: A workshop report and summary of key findings contributed to a journal paper, which is now an online discussion paper in the journal NHESS. It will appear in a special issue of NHESS on "Risk and uncertainty estimation in natural hazards", which will link it with other work emerging from related research on risk and uncertainty in natural hazards.

4.6 Sediments modelling

Partners: University of Leeds

This project was one of the very first research projects facilitated by JBA Trust. Mingfu Guan, undertook a six month project in 2012 to investigate how the quasi-3D hydro-morphological model developed during his research at Leeds University could be applied for field scale analysis with data from channel surveys relating to the North West 2009 floods in Keswick.

Outputs: Journal paper published in Water Resources Research, available at: http://onlinelibrary.wiley.com/doi/10.1002/2015WR017917/full

4.7 Infrastructure flood risk analysis and network-scale risk assessment of bridge scour

Partners: Oxford ITRC, Network Rail, JBA Consulting

We continued our work with the Oxford ITRC (Infrastructure Transition Research Consortium) team to apply JBA spatial risk assessment method to the railway network and UK infrastructure. A generic bridge fragility model has been developed using the historical failure data published by the Trust and Network Rail asset data. When combined with JBA's independently-derived national spatial model for river flow extremes, the fragility model predicts an expected rate of bridge failures per failure event that is within the 95% confidence interval about the historical mean rate.

Outputs: The results were presented at FLOODrisk 2016 in Lyon and are available at: http://www.e3s-conferences.org/articles/e3sconf/abs/2016/02/e3sconf_flood2016_11002/e3sconf_flood2016_11002.html A journal paper is expected to be published in 2017.

4.8 Maths Foresees: Multi-Scale Mathematics for Mitigating Severe Environmental Events

Partners: University of Leeds (PI), Heriot-Watt University (Co-I), Pennine Prospects, HR Wallingford, Fugro GEOS Limited, EA, Met Office plus 15 network members

This EPSRC Network aims to set up collaborations between the mathematical sciences and environmental change communities and promote mathematical modelling of environmental hazards. JBA Trust is providing in-kind support to the network through participation in the management team and contribution to knowledge exchange events, technical reports, workshops and outreach projects with the public. We are directly involved in two small demonstration projects funded through the network:

- Topographic uncertainty in flood models (Bristol University)
- Multi-level Monte Carlo case study for flood modelling (Imperial)

We are also supporting an outreach project, the 'Flood Hydrology Table Top Simulator' will be delivered through MSc group project with the CDT in Fluid Dynamics at Leeds.

Outputs: The Maths Challenge workshop outputs were published in April 2016 and are available at: http://www.jbatrust.org/how-we-help/publications-resources/weather-and-climate/identifying-coherent-weather-features-3d/

4.9 Flood forecasting pilot

Partners: University of Leeds

Heavy rainfall in the UK is predicted to increase under climate change. Understanding how state-of-the-art model rainfall products can improve flood forecasts and how uncertainties in these products can impact forecast accuracy is a key research area that is of great interest to academia, consultancies and the Flood Forecasting Centre at the Met Office. Research in this area will ultimately lead to improved flood forecasts.

The Climate and Geohazard Services (CGS) Hub at the Leeds School of Earth and Environment allocated funding for a post-doc, Dr Sophie Cowan, to carry out initial proof-of-concept research on the impact of rainfall data resolution on the accuracy of flood forecasts. In September 2015, Sophie delivered the first phase of modelling and the Project Lead, Dr Cathryn Birch, is now completing the research.

Outputs: The initial research was summarised in a poster by Cathryn Birch at a RMetSoc meeting. We plan to discuss how this initial work could be developed.

4.10 Susceptibility of catchments to INTense RAinfall and flooding (SINATRA)

Partners: Consortium led by Reading University and includes academia (Reading University, Bristol University, Newcastle University, Exeter University, Hull University, King's College London), industry (Halcrow and JBA), and government (UK Met Office and their joint Flood Forecasting Centre with the Environment Agency, the British Geological Survey, the Health and Safety Laboratory and the Cabinet Office's Natural Hazards Partnership). Funded by NERC, the Environment Agency and the UK Met Office under the Flooding from Intense Rainfall thematic programme.

JBA Trust's contribution to the original SINATRA project is complete but we are now building on that work as part of a knowledge exchange project with Newcastle University (SINATRA KE) to link flow and rainfall in the analysis of rapid response events in rural catchments.

Outputs: The original SINATRA outputs have been made available to research partners on a dedicated SharePoint site which will feed into the assembly of a comprehensive archive of flood events and impacts for analysis in cooperation with the SINATRA researchers based at Newcastle University.

4.11 Assessing the multiple benefits of SuDS (BeST – Benefits of SuDS Tool)

Partners: CIRIA, project steering group

CIRIA has developed a tool which can evaluate the multiple benefits associated with SuDS schemes to inform project investment and funding decisions. JBA Trust was a project partner and tested the tool by applying it to relevant case studies (provided by JBA Consulting). We also supported the dissemination of the tool.

Outputs: An Excel based tool, evidence base, nationally agreed methodology and guidance to support the assessment of the multiple benefits of SuDS are available at: http://www.susdrain.org/resources/best.html. BeST is complemented by the updated 'SuDS Manual' which was launched alongside the BeST in November 2015 at the House of Commons.

4.12 Monitoring of an event on an ephemeral chalk stream near Henley

Assendon Stream near Henley-on-Thames is an extremely ephemeral watercourse that is normally completely dry, even during a wet winter. It last flowed in 2001, resulting in flooding to roads and property, and before that it had not flowed since the 1960s. In February 2014, the spring started to flow following the extreme wet weather of the previous few months. This presented a very rare opportunity to monitor the progress of the stream down the valley, and gather important data in relation to the stream's response to groundwater levels and the mechanisms of flooding.

JBA Trust commissioned JBA Consulting to carry out monitoring of Assendon stream to collect data in relation to the stream's response to groundwater levels and the mechanisms of flooding and create a case study/report documenting the findings of the monitoring.

Outputs: The dataset, analysis and report will be published on the JBA Trust website with the dataset available on request.

4.13 Working with Natural Processes

The online catalogue of nature-based flood risk management projects in the UK was created in 2015 and is freely available (http://naturalprocesses.jbahosting.com/) for practitioners and researchers to use. We have continued to update this resource and it has been cited in a variety of academic and industry literature and presentations including an Environment Agency evidence report[1] and CIWEM magazine 'The Environment' article on Slowing the Flow (February 2016 issue).

Rob Lamb and Barry Hankin also attended a Rivers Trust conference on 20 May 2016 and presented on the need for more evidence to understand the effectiveness of Natural Flood Management (NFM) measures.

[1] *'How to model and map catchment processes when flood risk management planning' Project SC120015/R1 (*2016*)* pp.10 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/523456/How_to_model_and_map_catchment_processes_-_report.pdf

5 Building our reach

5.1 Website and social media presence

Our website is the main way that people access publications, educational resources and information about the Trust and our research projects. This year, we invested in a new website to improve the user experience and make resources easier to access. It was launched in June 2016 and it is now significantly easier access resources including posters, reports, data, code, videos, tutorials and workshop resources.

Figure 5. The new JBA Trust website homepage at www.jbatrust.org

We use Twitter to publicise research outputs, new resources, publications or scholarships and awards. The number of JBA Trust followers has been steadily growing and in 2015-16 there was a 64% increase of in Twitter followers with over 10,000 impressions of our posts during the year.

6 Directors and trustees

The Trustees serving during the year were as follows:

Trustees	Rob Lamb, JBA	(Managing Director)
	Jeremy Benn, JBA	
	Jim Hall, Oxford University	
	Keith Beven, Lancaster University	
	Nick Russell, Independent financial consultant	
Secretary	Craig Robson	

7 Structure, governance and management

JBA Trust is a company limited by guarantee and is governed by it Memorandum and Articles of Association. It was incorporated on 9 November 2011.

The trustees review the activities of JBA Trust every six months to ensure that they are focussed on supporting the purpose of the charity. The review also considers the strategic direction of the charity and considers how planned activities will contribute to public benefit.

We have referred to the guidance contained in the Charity Commission's general guidance on public benefit when reviewing our aims and objectives and in planning our future activities.

7.1 Appointment of trustees

On incorporation of the JBA Trust, the Board of Trustees was appointed by invitation.

To preserve independence of the JBA Trust from JBA Group companies, which provide part of its core funding, the JBA Trust's Articles of Association stipulate that the number of trustees connected to or employed by JBA Group shall always be less than half of the total number of trustees appointed at any given time.

The trustees are not remunerated (other than payment to cover travel and accommodation costs where required for JBA Trust business).

7.2 Trustee induction and training

The current trustees were appointed in 2012 when the charity was first established and have been briefed on their legal obligations under charity and company law, updates to the Charity Commission's guidance on public benefit, the content of the Memorandum and Articles of Association and the JBA Trust business plan.

7.3 Organisation

The Board of Trustees meets every six months and is responsible for the strategic direction and policy of the charity. A Managing Director is appointed by the trustees to manage the day-to day operations of the charity and is supported by a Programme Manager.

7.4 Risk management

The trustees have a risk management strategy which comprises:

- An annual review of the risks the charity may face
- Policies and procedures in place to mitigate those risks
- Plans in place to minimise the impact of the risks should they materialise.

The principal risk to JBA Trust is financial sustainability. This is mitigated by having a robust reserves policy and a clear financial plan which is reviewed and subsequently approved by the trustees at the start of the financial year.

JBA Trust adopts policies and procedures from our host, the JBA Group, which are externally validated where applicable. These include policies on: Health and Safety; Energy Use; Environment; Sustainability; Social Responsibility; Equality and Diversity.

8 Financial review

The principal funding source for JBA Trust is JBA Group dividends. JBA Trust also aims to leverage funding for research projects by applying for external funding from external organisations, for example Innovate UK or Research Councils. There is also an online donation page through 'MyDonate' to facilitate the receipt of donations from individuals and ensure that Gift Aid is claimed back efficiently.

8.1 Reserves Policy

Reserves are required to minimise the financial risks associated with the unlikely event of unplanned or unforeseen expenditure. As a newly established charity, JBA Trust is in the process of establishing research and education partnerships with external organisations and consequently is slowly building up reserves. The JBA Trust maintains sufficient reserves to cover all contractually committed expenditure or liabilities, and a contingency fund of minimum 5% of annual operating budget.

8.2 Plan for future periods

JBA Trust anticipates continued long term funding from JBA Group. To ensure that the charity maximises the value of its income in carrying out its activities, the strategic plan focuses on continuing to seek match funding for research projects from funding bodies, including Universities and Research Councils. In the future JBA Trust may also wish to generate an income by licensing datasets, results or models generated by research.

The trustees declare that they have approved the Trustees Report above.

On behalf of the trustees

Rob Lamb, Managing Director of JBA Trust 18 April 2017