Welcome to the newsletter of the School of Geography, Earth and Environmental Sciences at the University of Plymouth.

This edition highlights some of the innovative and interdisciplinary projects undertaken by our researchers to help find solutions to global sustainability challenges. These include addressing soil degradation and food insecurity in East Africa, researching water scarcity and disaster resilience in Turkey, and forest responses to climate change in Ghana. We have an introduction from our new Head of School and hear about the academic, career and volunteering successes of some of our students and graduates.

Dr Nichola Harmer
Editor
Academics from the School of Geography, Earth and Environmental Sciences (SoGEES) embarked this summer on a six-week voyage to help assess the health of our oceans and to inspire young people through marine environmental science.

The 59-day circumnavigation of the British Isles aboard the Tall Ship Pelican of London and coordinated by the UK-based organisation Darwin200, included an on-board ocean science programme for young people devised and run by SoGEES lecturers Dr Charlotte Braungardt and Dr Richard Sandford.

They led a suite of scientific observations, experiments and problem-solving sessions related to ocean processes, marine ecology and chemistry, plastic pollution and renewable energy. Some of the data gathered will contribute to ongoing science projects, including marine mammal surveys for the Sea Watch Foundation.

Dr Braungardt, Associate Professor in Environmental Science, said: “We’re extremely pleased to be involved in this project and mentoring the on-board scientists. We hope to encourage them to investigate the human impact on this awe-inspiring environment and discuss ways to address it on all levels, from individual behaviour to high-tech and global governance solutions.”

Dr Sandford, Lecturer in Environmental Science added, “The world’s oceans are fabulously diverse, ecologically rich, complex, interactive environments whose function depend on a range of processes. It is only by understanding them fully that we can explore how the oceans work and, importantly, provide solutions to the environmental challenges they are experiencing as a result of human activity.”

Scientists aboard the ship streamed live lectures, citizen-science updates and other activities to inspire and engage the wider public about ocean environments, the threats they face, and how these challenges may be addressed. During the journey the team saw basking sharks, minke whales, porpoises, bottlenose and common dolphins and grey seals with pups, among other species.

The initiative is also a preparation for a planned two-year global voyage in 2021 which will retrace Charles Darwin’s journey on-board HMS Beagle almost 200 years ago and create ‘the world’s most exciting classroom’, visiting the 50 ports where Darwin made landfall.

The prime objective of the global project is to find 200 next-generation global conservation leaders and inspire 200 million people by providing a platform of free, interactive resources for all school children, university students, teachers and the general public.

Watch an inspiring video about the voyage and hear from the young scientists and experts taking part in the voyage: https://www.youtube.com/watch?v=tzjaclYzE6Y
Researchers in the School of Geography, Earth and Environmental Sciences have received funding for a suite of projects to support cutting-edge research tackling global challenges in developing countries and countries in receipt of Overseas Development Assistance.

**NEW PROJECTS TO ADDRESS GLOBAL CHALLENGES IN DEVELOPING COUNTRIES**

The project teams are working in partnership with international colleagues and will research water security in Turkey, water quality in Peru, the threat of antibiotics in lake water in East Africa and forest responses to climate change in Ghana.

The work is funded by the UK Government’s Global Challenges Research Fund (GCRF) which supports interdisciplinary research that addresses the challenges faced by developing countries through international partnerships.

Under the scheme, Dr Jessie Woodbridge (principal investigator) will lead a £59,242 project with Dr Claire Kelly (University of Plymouth) and colleagues from the University of Birmingham, the British Institute at Ankara, Ankara University, Van Yuzuncu Yil University and the Anatolia Quaternary Research Centre at the University of Isparta to study water security in the agricultural landscapes of Turkey.

Titled the Kuruyan Kara, meaning ‘dryland’ project, it will build socio-ecological and community resilience to water resource challenges through a capacity building pilot study based in the Konya Basin (Turkey) and use an interdisciplinary approach combining natural and social science methods.

**Dr Sally Rangecroft** (principal investigator) with Dr Caroline Clason, Dr Isabel Richter, Dr Claire Kelly, Dr John Martin and collaborators in Peru from the Instituto Geofísico del Perú, the Instituto Andino de Montaña (an Andean NGO) and the Peruvian Ministry of Environment have been awarded £55,526 for the ‘Nuestro Río’ (our river) project, to help understand local perspectives on water quality in the Rio Santa, Peru. The project will gather people’s images, perceptions, emotions and understandings of water quality along the Rio Santa via a citizen science app ‘Nuestro Río’ and will unravel water quality issues and perceptions through this new database, participatory workshops, and semi-structured interviews with local people.

**Professor Sean Comber** (principal investigator) with University of Plymouth colleagues Professor Mark Fitzsimons, Preston Akenga and Dr Robert Schindler and Professor Mathew Upton and colleagues in the Jomo Kenyatta University of Agriculture and Technology were awarded £69,822 for research quantifying the human and environmental threat from antibiotics entering the Lake Victoria watershed against a background of pandemic scenarios.

The project is led by Professor Ralph Fyfe, Associate Head of School (Research) said: “The new GCRF-funded initiatives demonstrate the reach and societal significance of our work in SoGEEs at Plymouth. More importantly they signal our commitment to working with local researchers, learning from these embedded individuals and groups, to produce results that will make meaningful differences in the world”.

**Dr Sophie Fauset** (principal investigator) with colleagues at the CSIR-Forestry Research Institute of Ghana were awarded £47,900 for building capacity to monitor and understand forest response to climate change in Ghana. As part of the project, a small tower will be built in the forest to monitor canopy temperature and weather to help researchers gain a greater understanding of tree species response to climate. The researchers will also run a workshop for development of environmental monitoring skills.

Sophie explained: “This research will also contribute to a new global network monitoring forest canopy temperatures supported by the Natural Environment Research Council, enabling greater understanding of how different forests and tree species are responding to events such as heat waves and droughts.”
Professor of Transport Geography, Jon Shaw, has been appointed as the new Head of the School of Geography, Earth and Environmental Sciences (SoGEES).

A SHAW THING – OUR NEW HEAD OF SCHOOL

Jon’s research work has spanned a range of topics, from large-scale, pan-European investigations into transport needs in an ageing society, to small-scale investigations providing in-depth insights into people’s daily travel habits.

Jon has always tried to ensure that his academic work – he’s the author or editor of nine books – has tangible public policy relevance, and he has worked as an advisor to a range of governments and institutions, including the House of Commons’ Transport Select Committee and Great Western Railway.

During the course of his career, Jon has worked at universities in the UK (including a seven-year stint at the University of Aberdeen) and also in Germany, Australia and New Zealand. Indeed, Jon was in New Zealand, where he had been awarded a prestigious Erskine Fellowship to spend a term teaching at the University of Canterbury, Christchurch earlier this year before catching one of the last planes out of the country before it locked down because of COVID-19.

Jon explained: “I was visiting central Otago after giving a seminar in Dunedin and saw on the news that Jacinda Ardern, the Prime Minister, was imposing a 14-day quarantine on people arriving into New Zealand. I realised I was going to run out of options for getting home pretty quickly. Luckily University of Canterbury had a great travel agent who was able to sort things out and it was a bit of a scramble to get back to my house in Christchurch to pack!”

Jon believes that the time spent in New Zealand helped him to think through an outsider’s perspective: “We’ve got such a strong team here – fantastic staff and students – focused on the grand challenges that face our society and the planet we live on.

“I know as readers look through the pages of this newsletter there’ll be any number of examples of cutting-edge research that will assist policymakers wrestling with really pressing sustainability problems on land and at sea. At the same time, we pride ourselves on the quality of our teaching and the strength of the relationships we build with our students as they’re learning. Their achievements, both here in Plymouth and in the magnificently broad of careers they go into, is really impressive. There are plenty of leaders of the future who graduate with one of our degrees.”

Immediate developments in the School will be the commencement of a new Masters degree in Environmental Geochemistry and a new Bachelors degree in Environmental Geoscience, with further exciting initiatives to be announced shortly.

“It’s a real privilege to be working with such a talented collection of staff and students as we shape our research and our teaching programmes in the context of huge global challenges,” said Jon. “Our vision is to be a creative, energetic, diverse and interdisciplinary School whose people make world-class contributions to addressing these global challenges.”

GEOGRAPHY PROFESSOR IS ‘SSTAR’ PERSONAL TUTOR

The SSTAR - Student Staff Teaching and Representation Awards are run each year by the University of Plymouth Students’ Union (UPSU) to recognise University staff and students who go the extra mile to make a difference.

The award is student-led and Professor Fyfe was nominated for his treatment of students as individuals, time taken to listen to personal issues, providing help when needed, his encouragement of students in lectures and one-to-one meetings, and his support for students with their dissertations.

Thanking the Students’ Union for the award, Professor Fyfe, highlighted the commitment to students shown by staff across the School of Geography, Earth and Environmental Science, adding “I don’t see myself as being any more dedicated, or ‘outstanding’, than any of my colleagues within the School, who put a tremendous amount of energy and hard work into supporting our students.

“We are fortunate in our area that we have so much opportunity to interact with our students in small groups or in one-to-one situations. For me this includes in laboratory classes, during IT-based practical sessions, on fieldwork, or in tutorial settings. This means I get to know my students far better, build trust, and I can see them as individuals, not just as ‘faces in a lecture theatre’. We can spot students who are having a bad day, or week, and reach out with support where that it needed. This is one of the most rewarding parts of my role at the University.”

“I don’t see myself as being any more dedicated, or ‘outstanding’, than any of my colleagues”
NATIONAL SURVEY SHOWS EXCELLENT LEVELS OF STUDENT SATISFACTION

Subjects across the School of Geography, Earth & Environmental Sciences (SoGEES) received excellent feedback from their students in the National Student Satisfaction Survey for 2020.

- 100% of Chemistry students received timely feedback.
- 98% of Human Geography students felt their course had provided them with opportunities to bring information and ideas together from different topics.
- 98% of Physical Geography students stated they were satisfied overall with their course.
- 98% of Environmental Sciences students felt staff were good at explaining things.
- 97% of Environmental Sciences students stated they were satisfied overall with their course.
- 96% of Chemistry and Human Geography students stated they were satisfied overall with their course.
- 94% of Earth Sciences students stated they were satisfied overall with their course.
- 93% of Physical Geography students stated they were satisfied overall with their course.

The NSS is a high profile annual survey of students in higher education institutions across the UK, which gives students the chance to provide feedback and make their voices heard regarding their learning experience at university. It asks a series of questions about teaching, assessment and feedback, resources, the learning community and the organisation of the course.

The results, published in July, show that all subjects within the school gained very high overall approval ratings from students. A standout result for 2020 was Environmental Sciences with 97% of students stating they were satisfied overall with their course and putting the degree second out of 24 in the UK. Chemistry and Human Geography both received 98% overall satisfaction, with Human Geography placing 9th out of 52 in the UK and Chemistry ranking 9th out of 55 in the UK. Earth Sciences and Physical Geography also scored very highly – 94% and 93% respectively for overall satisfaction.

Professor Jon Shaw, Head of the School of Geography, Earth and Environmental Sciences said: “We’re really pleased with these results. We always enjoy working with our students to provide the best environment we can for their development. Learning and teaching should be stimulating and enjoyable, and should take place in excellent facilities. It’s great to know that our efforts are appreciated, even more so as all of our staff and students were working in very difficult conditions towards the end of the last academic year as we entered lockdown”.

Answers to survey questions also showed students recognised many further areas of excellence within the School, with Chemistry receiving 100% for timely feedback, and Human Geography 100% for both an intellectually stimulating course and a well-run and organised course. 98% of Environmental Sciences students felt staff were good at explaining things, 98% of Physical Geography students felt their course had provided them with opportunities to bring information and ideas together from different topics, and 97% of students taking Earth Sciences degrees felt staff were good at explaining things.

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PRESTIGIOUS AWARD FOR ‘RISING STAR’ OF STRUCTURAL GEOLOGY AND EARTHQUAKE HAZARD ANALYSIS

Dr Zoë Mildon, Lecturer in Earth Sciences, has received the Halstead Award, a prestigious accolade by the Geologists’ Association (GA), which recognises an individual who has made a substantial contribution in any area of Geology at an early stage in their career.

The award recognises her as “one of the rising stars of UK structural geology and earthquake hazard analysis, evidenced by a strong publication record, external recognition and associated accolades, and the fact that Zoë obtained a full-time lecturing position immediately after completion of the PhD”. Her passion for media engagement and outreach also impressed the panel.

Covid-19 meant the award ceremony in May was cancelled and instead Mr Nicholas Pierpoint and Dr Vanessa Banks (the outgoing and incoming presidents of the GA respectively) travelled to the South West to present the award to Dr Mildon at a socially distanced presentation and picnic at Haytor on Dartmoor.

Dr Mildon said: “It was a rather windy day, but they made it to the top of Haytor rocks, and then back to the car park for an ice cream before it started raining in true Dartmoor fashion!”

Dr Mildon has also been invited to give the Halstead lecture on her research to members of the GA in the near future.

Dr Zoë Mildon received the Halstead Award, presented by Mr Nicholas Pierpoint and Dr Vanessa Banks at Haytor on Dartmoor.

Zoe with Mr Nicholas Pierpoint and Dr Vanessa Banks at Haytor.
HIGH ACHIEVING CHEMISTRY GRADUATES SECURE JOBS WITH MAJOR EMPLOYER

Despite the challenges of finding graduate jobs during the COVID-19 lockdown, a number of our high achieving chemistry graduates from the class of 2020 have successfully secured employment with Babcock International at the company’s site in Devonport, Plymouth.

Regan Wall-Palmer  
Chemistry BSc 2020 (1st Class Hons)  
Graduate Health Physicist with Babcock, Plymouth.

Between my second and third year at University, I was lucky enough to undertake a placement at Babcock, leading to the offer of a position on the Health Physics Graduate Scheme, upon completion of my degree. I chose to pursue a career in Health Physics as it combined my love of Chemistry with an interest in understanding more about radiation protection and how this is applied in a practical environment. At Babcock, my role allows me to work on the MOD’s fleet of nuclear-powered submarines, as well as in a range of radiological controlled areas. Undertaking several placements on the graduate scheme will enable me to grow my technical understanding and apply this to a specific role later in my career.

My advice to anyone looking for their first job after university is to be proactive, start early and find the opportunities available out there – don’t wait for them to come to you! Be confident in yourself and always ask questions. And if you do get the chance to take advantage of any placement or work experience, make the most of it. Building a broad professional network is crucial to growth in a resourceful career.

Rhiannon Pirt  
Chemistry BSc 2020 (1st Class Hons)  
Graduate Health and Safety Team, Babcock, Plymouth.

I joined the Graduate Health and Safety Scheme and my position involves multiple four-month placements in various departments where I will focus on keeping people safe in and around the workplace. Babcock will also assist in my gaining NEBOSH qualifications.

The careers team and many of the academics are always saying how graduate (and placement!) schemes open before people start thinking about their next year. I started looking for jobs in January 2020 and applied to all the ones I was interested in – that way, the pressure was off me for a while as the ball was in the recruitment teams’ court.

I was unsuccessful for the majority of the jobs I applied for, which was quite disheartening. However, you only need one to “bite” so just crack on and find more opportunities. Don’t apply for a job just because it’s the first one that comes up in your search results - read the description and make sure it suits you AND you suit it.

Sophie Knight  
Chemistry BSc 2020 (1st Class Hons)  
Graduate Health and Safety Team, Babcock, Plymouth.

After completing my degree, I obtained a role on the Graduate Health and Safety team working at Babcock, located in Plymouth. Management of safety, health, environment and fire across both nuclear and conventional areas of the dockyard are a crucial function of the site and over the course of two years, I will work across various departments to gain a full breadth of specialist knowledge that will hopefully make a positive contribution to health and safety operations. Over the two years, I hope to undertake a wide variety of challenging and exciting projects as well as work towards becoming a chartered specialist in topics such as health and safety, occupational hygiene and environment.

Chemistry Programme in Its Element

Chemistry has just been ranked 14th out of 53 in the Guardian University league tables 2021. What’s more, Chemistry came top in ‘satisfied with feedback’, joint 2nd in both ‘satisfied with teaching’ and the ‘value-added score’ (along with the University of Oxford, Queen’s University, Belfast and Queen Mary University of London) and 6th on satisfied with the course.
A new research project, led by researchers from the School of Geography, Earth and Environmental Sciences, is working with farming communities in East Africa to help address the devastating impacts of soil erosion and tackle the complex challenges and issues regarding sustainable food productivity and security. These impacts include science-based issues including soil degradation and climate change, as well as social factors such as cultural traditions, population growth and political upheaval.

The project - Integrated community-driven engagement for sustainable enhancement of food production in East Africa: the Jali Ardi [Care for the Land] project - is supported by a grant of £249,000 from the Joint Biotechnology & Biological Sciences Research Council (BBSRC) and Natural Environment Research Council (NERC) GCRF Research Translation Call: Sustainable Enhancement of Agriculture and Aquaculture Production.

Dr Kelvin Mtei, Dean of the School of Business Studies and Humanities at Nelson Mandela African Institution of Science and Technology (NM-AIST) highlighted the strategic importance of the ongoing research: “The Jali Ardi project upholds the NMAIST motto of “academia for society and industry” by engaging communities in our research endeavours.”

The new project builds on the research team’s Jali ardi (meaning ‘care for the land’ in Swahili) suite of projects, which suggests that an interdisciplinary approach is the only way to secure real and lasting change in communities affected by soil erosion, and which was recently shortlisted in the Internationalisation category of The Guardian University Awards 2020.

The new research will apply those conclusions in four villages in the Monduli District of northern Tanzania, which are all experiencing the challenges of severe degradation of cultivated and pastoral land from lowland to upland. By combining local knowledge and scientific evidence, it is hoped to restore damaged agricultural landscapes while underpinning the sustainability of future crop production.

The project is being led in Plymouth by Professor Will Blake, with Dr Claire Kelly, Dr Alex Taylor and Professor David Gilvear, working alongside Tanzanian colleagues from the Nelson Mandela African Institution of Science and Technology (NM-AIST); Professor Patrick Ndakidemi, Dr Kelvin Mtei, Dr Linus Munishi and Mr Francis Mkilema and from Sokoine University of Agriculture, Professor Reuben Kadigi and Dr Nyambilila Amuri.

Professor Blake, who was recently appointed an Adjunct Professor in NM-AIST’s School of Materials Energy Water and Environmental Sciences, said: “In the face of physical threats of soil erosion and land degradation, East African agro-pastoral farming systems are approaching a tipping point. There has never been a greater urgency for evidence-led interventions to support better, and sustainable, food production and to reverse the degradation of natural resources that threatens food and water security.”

Dr Claire Kelly, who was recently appointed Adjunct Faculty Member in the School of Business Studies and Humanities at NM-AIST said: “We are going to be working again with our partner communities, building on the solid foundation of capacity and trust from our previous Jali Ardi and Ardhi na Kujifunza (Land and Learning) projects, to deepen the newly emerging culture of innovation. Together with community members, we hope to identify, co-design and implement tailored pathways for sustained change in agricultural land management practice, based on what is possible and achievable in each of the different land restoration and socio-cultural contexts.”
REFLECTIONS ON VOLUNTEERING DURING LOCKDOWN

Lockdown has been a very surreal experience and whilst it has been good in some respects, i.e. to take time out of the routine ‘life train’ and to focus some time and attention on self, it has been detrimental to mental health (having too much time but isolated from human contact).

To focus on my own mental health and well-being, among other things, I have been able to go for walks and experience nature in a way that we may never experience it ever again. There has been no traffic, hardly anybody about and many species have thrived. Earth needed this break to revive and although lockdown has been devastating and disruptive in many respects it has given nature time to heal itself to a certain extent.

Although organised volunteering, like most other things, has been on hold during lockdown, I have, on my walks, picked up litter along the way and collected twelve bags of litter from beaches, walks and the neighbourhood.

I have also volunteered my time online identifying baboon species, carried out a butterfly survey for the Big Butterfly Count and volunteered to be on a six week test course on ‘Effective camera trapping’ and a series of webinars for a week exploring the Sustainable Development Goals and their relevance to nature connection run by Ambios Ltd.

I am also currently volunteering with the ‘The Iguanas from Above’, surveying population of Galapagos Marine iguanas, made possible by the University of Leipzig, Germany and the Galapagos Science Centre, Ecuador among others, and with the Embryo Cam by the University of Plymouth.

This time has been spent on Reflecting, Renewing, Recycling and Research.

Vaishali Phippen – Outgoing Chairperson of EnviroSoc

CITIZEN-SCIENCE PROJECT TO HELP DEVELOP DISASTER RESILIENCE IN VULNERABLE COMMUNITIES

Dr Irene Manzella, lecturer in Engineering Geology and Geohazards in the School of Geography, Earth and Environmental Sciences, has received funding to focus on the use of citizen-science to manage and mitigate disaster risk in developing countries.

The project is a collaboration with a range of institutions and a multidisciplinary pool of experts across three countries, working closely to develop citizen participation by collecting data through social media and other communication channels that will be used to direct the pre- and post-disaster interventions for vulnerable people and areas.

A pilot study will be carried out in the city of Elazığ in eastern Turkey. With a dense, low income population and high disaster risk due to landslides, rockfalls, earthquakes and floods, it presents a high level of vulnerability and risk. The innovative, multidisciplinary and participatory approach of the project will help citizens and stakeholders to monitor high risk sites, raise awareness and increase resilience to help build a more sustainable future for the city.

The New Technologies and Participatory Approaches for Disaster Resilience project is funded by Frontiers of Development Seed Funding of £20,000 from the Royal Academy of Engineering under the Global Challenges Research Fund (GCRF) and it will provide an important springboard for future research development and applications.

A BUSY YEAR WITH ENVIROSOC

Vaishali Phippen
BSc(Hons) Environmental Management & Sustainability (3rd year)

EnviroSoc have been busy this year promoting sustainability on campus, creating opportunities for members to come together and volunteer their time, share ideas, make friends with like-minded people in the process and network in the community.

“We alone can do so little; together we can do so much.” Helen Keller

We have also organised monthly meetings and activities such as socials, bowling, conservation events, litter picks, beach cleans, beach surveys, walks on Dartmoor, talks by prominent people, live streaming of the IES Burntwood Lecture, film nights, cake sales, quizzes, and sale of eco-friendly and upcycled items to raise funds for our chosen charities Devon & Cornwall Food Action and Dartmoor Pony Trust.

We collaborated with other societies and local groups including, Marine Conservation Soc, Plymouth Beach Clean, Plymouth Environmental Action and Clean Our Patch.

Our many plans, including a guided walk and treasure hunt around Plymouth to get to know your city, were thwarted because of Covid-19 but I am sure the new committee will take this forward and thrive we wish them every success.

Vaishali Phippen – Outgoing Chairperson of EnviroSoc

A collapsed building after the 6.7 magnitude earthquake on 24 January 2020 in Sivrice, Elazığ. Photograph courtesy of Dr Nejan Huvaj (METU, Turkey).
This summer saw the annual Girls into Geoscience (GIG) event, an award winning outreach initiative, take place a little differently.

**NEW LGBT+ ALLIES TRAINING OPEN TO SCHOOL STAFF**

The LGBT+ Staff Forum members have developed an LGBT+ Allies training course for everyone who wants to be an ally but isn’t sure how. Courses will be running from September.

The University of Plymouth LGBT+ Staff forum exists to promote and share the views and concerns of LGBT+ staff members. The forum recognises the importance intersectionality plays within our lives and welcomes all staff who identify as having a minority gender identity and/or sexual orientation, irrespective of age, disability, ethnicity, race, colour, nationality, religion or belief.

The forum also provides confidential support and a safe, supportive and inclusive environment for members to meet. Forum meetings are held bi-monthly with socials held monthly and a Kiki (lunch club) held every two weeks.

**RESEARCH TO HELP IMPROVE SOCIO-ECOLOGICAL RESILIENCE TO WILDFIRES IN THE UK**

A team of researchers in the School of Geography, Earth and Environmental Sciences has been awarded £15,000 from the Royal Geographical Society’s Environment and Society scheme for a project that will look to improve socio-ecological resilience to wildfires in the UK.

Led by Dr Jessie Woodbridge, with Dr Claire Kelly and Dr Gina Kallis (PDRF), the research will build understanding of risk awareness and the impacts of wildfire on communities and livelihoods through engagement with stakeholders in the Peak District National Park.

As part of the work, the team will analyse a dataset of social media and academic literature to determine the relative importance of the different factors influencing community risk awareness.

REPRESENTING THE **STUDENT VOICE ON UNIVERSITY SENATE**

Harry was voted on to the Senate after preparing a manifesto outlining suggested changes aimed at improving the student experience. These included creating a function on the university’s online learning site whereby individual students could see feedback from all their assessments gathered in one place, and further advertising and expansion of the successful Peer Assisted Learning Scheme (PALS) scheme in which trained student mentors provide study support to fellow students in the year below.

Harry has been a course representative for Geography since starting his degree two years ago and he also represents the student voice on the School of Geography, Earth and Environmental Sciences Teaching and Learning Committee. Joining the Senate allows him to build on these experiences through seeing how decision-making works and making an important contribution at the university-wide level.

He explained: “The role allows me to put forward the student perspective and to have an input and leverage on matters that are hugely important to the student experience. For example, this will include issues regarding teaching and use of the campus during the COVID-19 crisis, equality and diversity policies and initiatives, and other longer term plans and strategies.”

The role of course representative, combined with the skills and experience gained during his degree studies, have supported Harry to develop the confidence and communication skills to represent students’ views clearly, fairly and diplomatically at the highest levels of the institution.

After graduation he hopes to train as a teacher and is already getting work experience through a work-based learning module which has seen him gain a placement as a teaching assistant in a local primary school.
The research, which also involved scientists from the University of Copenhagen, University of Gothenburg and the University of Cambridge, traced the unfolding of two major human migrations recorded in Holocene Europe – the northwestward movement of Anatolian farmer populations during the Neolithic and the westward movement of Yamnaya steppe peoples during the Bronze Age. They also researched how these migrations were associated with alterations in vegetation – changes that led to Europe’s forests being replaced with the agricultural landscape that still much in evidence today.

Their results, published in the journal PNAES, show the two migrations differed markedly in both their spread and environmental implications, with the Yamnaya expansion moving quicker and also accounting for changes in climate. It also demonstrated that natural variations in climate patterns during this period were associated with the fast movement of the Yamnaya steppe peoples during the Bronze Age. It also showed that a decline in broad-leaf forest and an increase in pasture and natural grassland vegetation was concurrent with a decline in hunter-gatherer ancestry, and may have been associated with the fast movement of steppe peoples during the Bronze Age.

The research made use of land cover maps showing vegetation change over the past 11,000 years, which were produced through the University of Plymouth’s Deforesting Europe project. Scientists working on that project have previously shown more than half of Europe’s forests have disappeared over the past 6,000 years due to increasing demand for agricultural land and the use of wood as a source of fuel. The study used techniques commonly applied in environmental science to model climate and pollution, and applied them instead to analyse human population movements in the last 10 millennia of European history.

The research is the first to model the spread of ancestry in ancient genomes through time and space, and provides the first framework for comparing human migrations and land cover changes, while also accounting for changes in climate. Dr Woodbridge explained: “Collaboration with palaeo-geneticists has allowed the migration of human populations in the past to be tracked using ancient DNA, and for the first time allowed us to assess the impact of different farming populations on land-cover change, which provides new insights into past human-environment interactions.”

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Chemistry lecturer Dr Mike Foulkes has been awarded the Anne Bennett Memorial Award for Distinguished Service in recognition of his long-standing teaching career and enthusiasm for promoting analytical chemistry, particularly atomic spectroscopy.

Dr Foulkes, who recently retired from the School of Geography, Earth and Environmental Sciences (SoGEES), was a popular and highly valued member of the Chemistry teaching team who continues his involvement through a range of outreach initiatives and activities. He is one of the 175 RSC Faces of Chemistry and a long-standing member of the Royal Society of Chemistry (RSC) Analytical Division and RSC Peninsula Local Sections.

For 30 years, Dr Foulkes enlightened young minds by bringing chemistry to life. He explained: “My job was to show where chemistry fitted into the real and practical, ‘everyday’ world to help students to, not only understand certain areas of chemistry but also to train them in how they could roll their sleeves up and actually practice chemistry.”

Inspired by his own chemistry teacher, Mike followed a career in chemistry, first in industry, then academia. Teaching chemistry, training students and helping to inspire a generation of future chemists has been a highlight of his career.

Keen to encourage others into the profession, he offers some advice: “It doesn’t matter who you are; if you have a passion for your subject and really enjoy what you do, then with perseverance, and with the range of skills you acquire along the way, you will succeed.”

Mike continues to support the Chemistry team’s outreach efforts within the School via his links with the RSC, acting as an ambassador for the subject area, volunteering with joint initiatives between the School’s Chemistry team and the RSC, and continuing to offer advice and support to staff and students, past and present.

He recently co-authored (with Dr Hywel Evans) a brilliant textbook: Analytical Chemistry – A Practical Approach ensuring his teaching legacy within the subject area.

The laboratories included the Analytical Research Facility (ARF), the Consolidated Radioisotope Facility (CoRIF) and the Environmental and Fluid Modelling Group (EFMG). The auditor was impressed with the level of information contained in the documentation and organisational structure, praised the depth and detail of internal audits, and suggested we offer our services as quality management consultants.

The ISO 9001 certified quality management system is designed to operate to the principles of ISO 17025, the standard for testing and calibration laboratories. This allows the laboratories to tender for commercial work and also supports the teaching and training of students.

Dr Rob Clough, technical specialist in SoGEES, explained that BSc (Hons) Chemistry and Masters of Chemistry (MChem) students receive training to work in and use a regulated laboratory environment through formal practicals and lectures.

He added “Those who undertake a research project within these facilities can receive a Continuing Professional Development award, which demonstrates their training and enhances their career and employment prospects.

At the time of writing, it is thought that this is a unique opportunity for undergraduates within UK universities. A large part of the MChem year is underpinned by this certification and it will also play an important role for the new MSc in Environmental Geochemistry”.

Recent graduates have found that working in our ISO 9001 certified laboratories has conferred an important advantage when seeking work. Recent MChem (Hons) Analytical Chemistry graduate Chloe Smart, received praise from the panel for her knowledge during a successful interview for international life sciences measurement and testing company, LGC Group.

Caroline Uncles, also a MChem (Hons) Analytical Chemistry graduate who now works for Smithers Pira, a packaging testing and consultancy service, remarked, “During my interview my employer found it useful that I already had knowledge of the ISO 17025 standard from my studies at the University of Plymouth, commenting on how this helps to bridge the gap between University and working in industry.”

Three laboratories run by the School of Geography, Earth and Environmental Sciences (SoGEES) and used by our students recently passed their annual audit for compliance with the ISO 9001 standard with flying colours. No non-conformances or observations for improvement were raised – a first for the auditor.
A research project led by Dr Alan Smith, Human Geography lecturer, has been funded £300,000 to use water supply data to help understand population fluctuations in areas with high levels of tourism.

**UNDERSTANDING POPULATION SURGES IN TOURIST HOT SPOTS**

Funded by the Economic and Social Research Council (ESRC), the research project is titled ‘WatPop: understanding seasonal population change’ and is jointly led by Dr Andy Newing from the University of Leeds with project partners South West Water and the Office for National Statistics.

Principal Investigator Dr Smith explained: “Population fluctuations are not captured by traditional statistics, yet in some localities tourism is responsible for huge population variations during the peak tourist seasons. In Devon and Cornwall, for example, it is estimated that one in twenty dwellings represent self-catering tourist accommodation. However very little is known about their precise location or occupancy patterns. Such properties present considerable challenges when it comes to assessing population changes, and place substantial demands on infrastructure and local service provision.”

By accessing water supply data provided by South West Water for Devon and Cornwall, the project will gain an informed insight into the extent to which occupancy levels rise during the peak tourist seasons in different areas. Equivalent data are routinely collected by all statutory water authorities and levels rise during the peak tourist seasons in different areas. Equivalent data are routinely collected by all statutory water authorities and local service provision.”

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High resolution water meter data is already routinely collected with very good potential for research within population geography.

Environmental Sciences student Tegan Helbrow’s explains how placement in a South African nature reserve provided data on overgrazing.

During July-August 2019, I spent my summer in South Africa at a private nature reserve carrying out conservation work and conducting research focusing on the distribution and grass species preference of Southern White Rhinoceroses. I would leave on foot at 7am to track rhinos across the reserve, walking up to 25km a day with the help of field rangers. Once rhinos were located, I conducted an ethogram for one hour to observe their behaviour. Once completed, I constructed a 50-metre transect across the area where the rhinos were observed and a 0.5 x 0.5 metre quad was used to assess grass species percentage cover every 5 metres.

On my days off I joined in with conservation work across the reserve including game counts, invasive species control and tick surveys. I was able to participate in the dehorning of rhinos for conservation purposes at the reserve, allowing me to get up close to the species I was studying.

In total, I recorded 40 transects over two months and when I returned to Plymouth, I used this data for my dissertation. The data I collected enabled me to assess general grass patterns across the reserve, trends over the dry season, and the ecological status, showing that it was overgrazed, and that conservation measures were needed.

Tegan graduated this summer with a first class degree in BSc Environmental Science and is returning to Plymouth in September to study for a master’s degree in MSc Environmental Consultancy.

**STUDENT’S RESEARCH ON RHINO GRAZING HELPS INFORM CONSERVATION**

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**PROFESSOR JOINS EXPERT PANEL ON RARE BREEDS CONSERVATION**

Dartmoor ponies are classified as an endangered rare breed. Photo credit: Malcolm Snelgrove

Geography Professor Richard Yarwood has joined an expert panel advising the Rare Breeds Survival Trust (RBST) on its conservation priorities and plans.

The RBST is a charity dedicated to monitoring and protecting rare breeds of livestock, including horses, cattle, pigs, sheep, goats and poultry, some breeds of which are now endangered, critical or vulnerable. Professor Yarwood has a long-standing research interest in the geographies of rare livestock and in particular their social and cultural value to rural places.

Given climate change and the current Agriculture Bill, there is scope for many traditional breeds to play a stronger role in farming.

The inaugural meeting of the expert panel took place in February at Clarence House, by kind permission of the RBST’s Patron, HRH the Prince of Wales.
Current and former students across the School of Geography, Earth and Environmental Sciences (SoGEEs) have had the quality and impact of their research recognised through publication in peer reviewed journals.

**STUDENT RESEARCH PUBLICATIONS**

The studies include undergraduate dissertations and masters projects and their development for publication has been supported by academic staff keen to see students receive wider recognition for their work.

A diverse range of student research is represented from the mobility experiences of shoppers with cerebral palsy, to recycled electronic plastic and marine litter, the delivery of mixed communities in the regeneration of waterfront sites in Plymouth and Bristol, and the concentration of arsenic at former mining sites.

BA (Hons) Geography graduate James Bonehill, who graduated in 2018, recently saw research from his dissertation published with his advisor Professor Jon Shaw and external advisor Dr Nadia von Benzon, from Lancaster University. Published in the journal Mobilities, the paper addressed the mobility experiences of shoppers with cerebral palsy in urban England. James, now a consultant at international transport operations and customer service consultancy North Star Consultancy, was inspired by Professor Shaw’s transport geographies module during which students undertook a journey and recorded their experiences. James’ experience on the London Underground led him to develop his dissertation research into disability, social exclusion and mobility.

He explained: “I witnessed a visually impaired passenger struggling to use the tube, not just boarding and alighting the train, but also navigating the station, using the maps, etc. I had never, until this moment, thought about how difficult it must be for others with disabilities to use public transport.”

Following successful completion of the dissertation, James was supported in the writing-up process by Professor Shaw and Dr von Benzon. Having his work published was both a huge personal and professional achievement but also important for the amplifying the voices of those from the disability organisation James partnered with for his dissertation.

Similar publishing success has been achieved by students in disciplines across SoGEEs. MSc Applied Marine Science student Elanor James recently had her research paper on antimony from microplastics in coastal sediment published with co-author Associate Professor in Environmental Sciences Andrew Turner in the journal Environmental Pollution. Also with Dr Turner, MSc/PgDip Sustainable Environmental Management student Lydia Knight published research on particle-water interactions of bismuth under simulated estuarine conditions in the journal Chemosphere.

BSc Environmental Science graduate Emma Shaw saw her research on recycled electronic plastic and marine litter published with co-author Andrew Turner in Science of the Total Environment and Kye Martin. BSc (Hons) Environmental Science, and Dr Andrew Turner had research published on the mobilization and bioaccessibility of cadmium in coastal sediment contaminated by microplastics in the journal Marine Pollution Bulletin.

MSc Environmental Consultancy graduates Daniel Chester-Sterne and Xiaqing Chen are co-authors of an article published in 2020 with lead author Dr Charlotte Braungardt Associate Professor in Environmental Science, and Dr Andrew Turner on arsenic concentrations at the Devon Great Consols, Cornwall and West Devon Mining Landscape UNESCO World Heritage Site.

Will Arundel, MSc Applied Marine Science graduate and Christian Muller-Karanassos, Miles Marine Biology, were lead and co-authors respectively on a 2019 paper in Environmental Pollution with Dr Andrew Turner and other academics from the University of Plymouth, Plymouth Marine Laboratory, and PML Applications. Their 2019 research paper examined anti fouling paint particles in intertidal estuarine sediments from southwest England and their ingestion by the harbour ragworm, Hediste diversicolor.

MSc Planning graduate Daniel Thorming, published an article with his MSc planning lecturers and co-authors Dr Stephen Essex and Professor Chris Balch in Land Use Policy which discussed the delivery of mixed communities in the regeneration of urban waterfronts focusing on Plymouth and Bristol. And Dan Young, also a graduate of the MSc Planning degree published research this year from his master’s dissertation with Dr Stephen Essex in the Journal of Environmental Planning and Management. The research explored the progress that has been made by the planning system in England in addressing the challenge of climate change adaptation in coastal urban areas, which remains incremental rather than transformative.

Last year’s British Society of Geomorphology undergraduate dissertation prize winner, Jess Kitch (now working with Professor Will Blake and Dr Caroline Clason on projects in Chile and Peru and also registered for a PhD) was the lead author on a publication in 2019 in the Journal of Soils and Sediments on ‘Understanding the geomorphic consequences of enhanced overland flow in mixed agricultural systems: sediment fingerprinting demonstrates the need for integrated upstream and downstream thinking’.

**Undergraduate Programmes**

- MChem (Hons) Analytical Chemistry
- BSc (Hons) Chemistry
- BSc (Hons) Environmental Geoscience
- BSc (Hons) Geology
- MGeol (Hons) Geology
- BSoc (Hons) Geography with Ocean Science
- BSc (Hons) Physical Geography and Geology
- BSc (Hons) Environmental Management and Sustainability
- BSc (Hons) Environmental Science
- BA (Hons) Geography
- BSc (Hons) Geography
- BA (Hons) Geography with International Relations
- BSc (Hons) Geography with Ocean Science

**Access Courses**

- BSc (Hons) Chemistry with Foundation Year
- BSc (Hons) Geology with Foundation Year
- BSc (Hons) Environmental Science with Foundation Year

**Postgraduate Programmes**

- MSc Environmental Geochemistry
- MSc Environmental Consultancy
- MRes Sustainable Environmental Management
- MSc Sustainable Environmental Management
- MSc Human Geography Research
- MSc Planning
The University has an ongoing commitment to produce environmentally friendly publications. As we use FSC paper all of our printed content can be recycled.