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THE BRYDEN CENTRE

OFFICIAL NEWSLETTER

Welcome to the summer edition of the Bryden Centre eZine. The last six months has seen a great deal of activity and progress with the work of the Centre.

GOODBYES AT LYIT

The past few months has seen many changes at LYIT. We said au revoir to John Doran, the regional Bryden Centre manager, who retired in June from LYIT after many years' service. John was one of the main proponents for the Bryden Centre many years ago and has been a cornerstone of the centre ever since. We are very grateful for his amazing support, drive and ambition for the Bryden Centre and our students.

In April we said goodbye to Dr Narendran Kumar a PDRA at LYIT who has moved on to a faculty position at IIT-Madras in India. This is a real advancement for Narendran and although we were sad to see him go it was good to see him move upwards in his career.

Finally, Dr Chris McCallum our first PDRA at LYIT is also moving on to a career beyond academia. Chris is leaving to work for the Mushroom producer's association and we wish him well as he moves into the commercial world.

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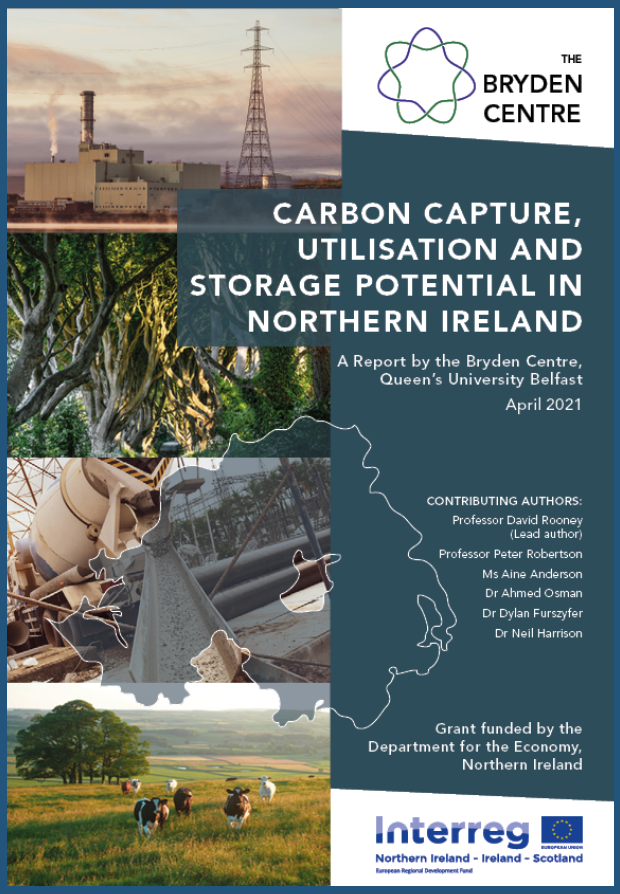
MAJOR REPORT ON CARBON CAPTURE, UTILISATION AND STORAGE IN NORTHERN IRELAND

Capture of CO_2 from industry, agriculture and power generators is widely regarded as essential if the world is to achieve Net Zero carbon emissions by 2050. Many key sectors will be difficult to decarbonise for technical, cost, or other reasons without capturing carbon emissions. A major report from the Bryden Centre investigated the options, opportunities, and economic impact for Northern Ireland to decarbonise using Carbon Capture, Utilisation and Storage technologies.

Every region has a unique mix of industry and resources and so routes to best capture carbon emissions will vary. In Northern Ireland only 17% of CO_2 comes from major emitters and there is a wide geographical distribution of high and medium scale emitters spread across the region with no significant clustering. Also of note is that agriculture has the largest greenhouse gas emissions by sector in the region unlike the rest of the UK and preventing or capturing these emissions is significantly more difficult.

Conventional Carbon Capture and Storage looked to be an expensive option for Northern Ireland so we also looked extensively at options to utilise captured CO_2 to produce products that could offset the costs of carbon capture. One avenue that addressed many issues in Northern Ireland was to exploit the regions agricultural sector coupled to the CO_2 streams to produce animal feed, biofuels and biochemicals.

A seminar was held to launch the report on 8th June 2021. The work is directly supporting the development of a new Northern Ireland Energy strategy by the Department for the Economy.



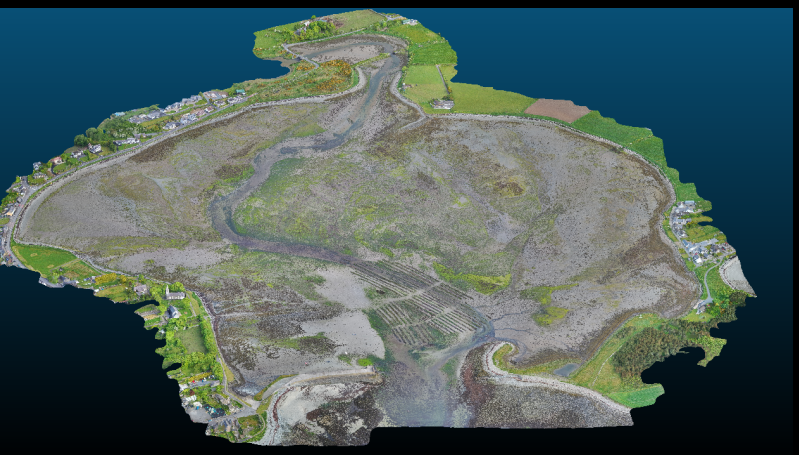
The complete report and link to a recording of the seminar can be found:

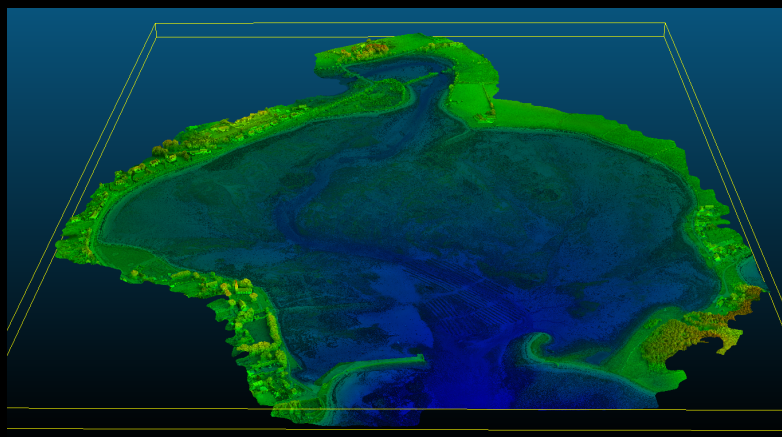
Download Report Here

Watch Seminar Here

KILLOUGH HARBOUR, FEASIBILITY STUDY

After successful retrieval of Acoustic Doppler Profilers deployed in Killough harbour, Bryden Centre PDRAs Pal Schmitt and Lilian Lieber completed a first energy yield model for a possible tidal test site in Killough Harbour. Results were accepted for presentation at the 14th European Wave and Tidal Energy Conference which will take place in Plymouth between 5th-9th September 2021. Work is now progressing on refining the model further by integrating a recently completed high resolution Digital Elevation Model acquired using aerial drone based laser scans





STUDENT-SCAP MEETING

The Bryden Centre's Science and Commercial Advisory Panel (SCAP) held a progress review meeting in June to hear presentations on progress from final year PhD students. Eight students from across the consortium presented progress and answered probing questions from members of SCAP and supervisory teams. Due to ongoing restrictions the meeting was held virtually but this did not prevent a lively discussion. Many positive comments were made on progress along with ideas for future direction.

This was the last cohort of students to present to SCAP as PhD projects complete and a frenzy of thesis writing and submissions commences.

RALPH LAVERY

Often a critique of academia is that it is inaccessible to the wider world, both in content and delivery. This is a major hurdle to using research to benefit the everyday lives of large numbers of people around the world. As my research has focused on sustainable energy systems, overcoming this disconnect is vitally important to enable engagement from both industry and the public. TEDx at QUB offered a fantastic opportunity to do both with a series of talks focused on 'Engineering Our Sustainable Future'.

I applied for consideration with a short video presentation on my topic of discussion: The History of Ammonia and the Human Race, and was fortunate to be selected by the panel. Working with the TEDx team at QUB and Bespoke Communications I developed my initial concept into a fully developed narrative that was both engaging and contained complex scientific arguments in an easy to follow and palatable way.

This helped to condense the two millennia long history of human use of ammonia and the opportunities it presents to decarbonise energy into a 7-minute talk that reached far more people than I can do on my own. Due to current restrictions the event was pre-recorded and streamed on 24 June 2021, you can now watch the session online.

TEDxQUB
Engineering Our Sustainable Future