

Resilient Small (<1 MLD) Water Treatment Works

CIWEM Water Research in Scotland, Wednesday 30th November 2016 – Glasgow, UK

Student: Dan Golea

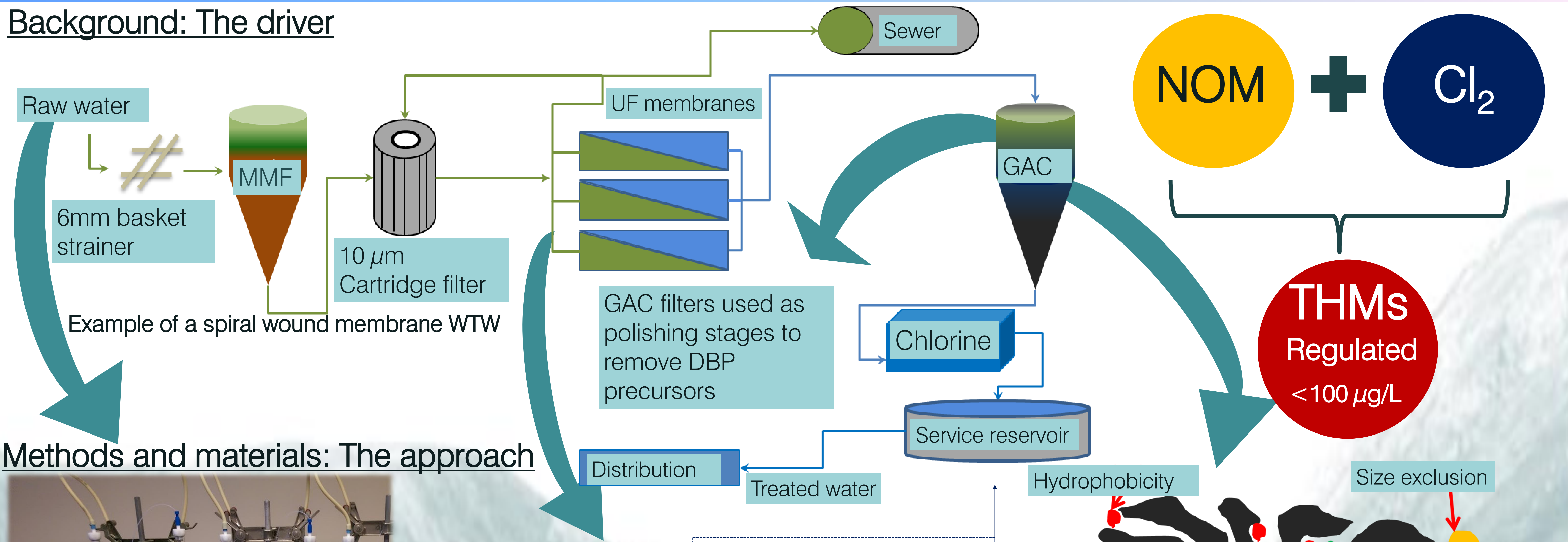
Academic supervisors: Prof Peter Jarvis and Prof Simon Judd

Industrial supervisors: Graeme Moore and Stewart Sutherland

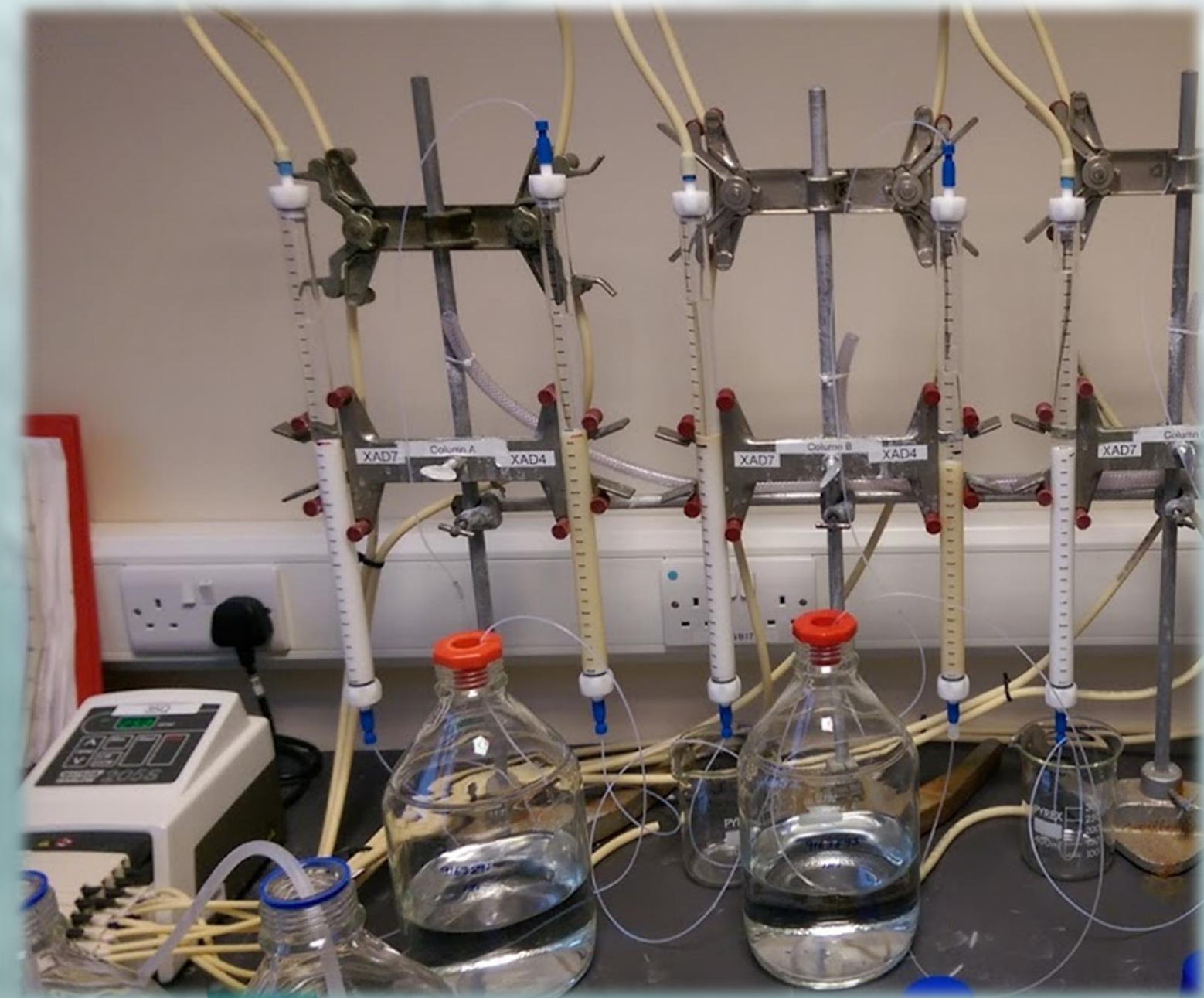
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The Industrial Doctorate Centre for the Water Sector

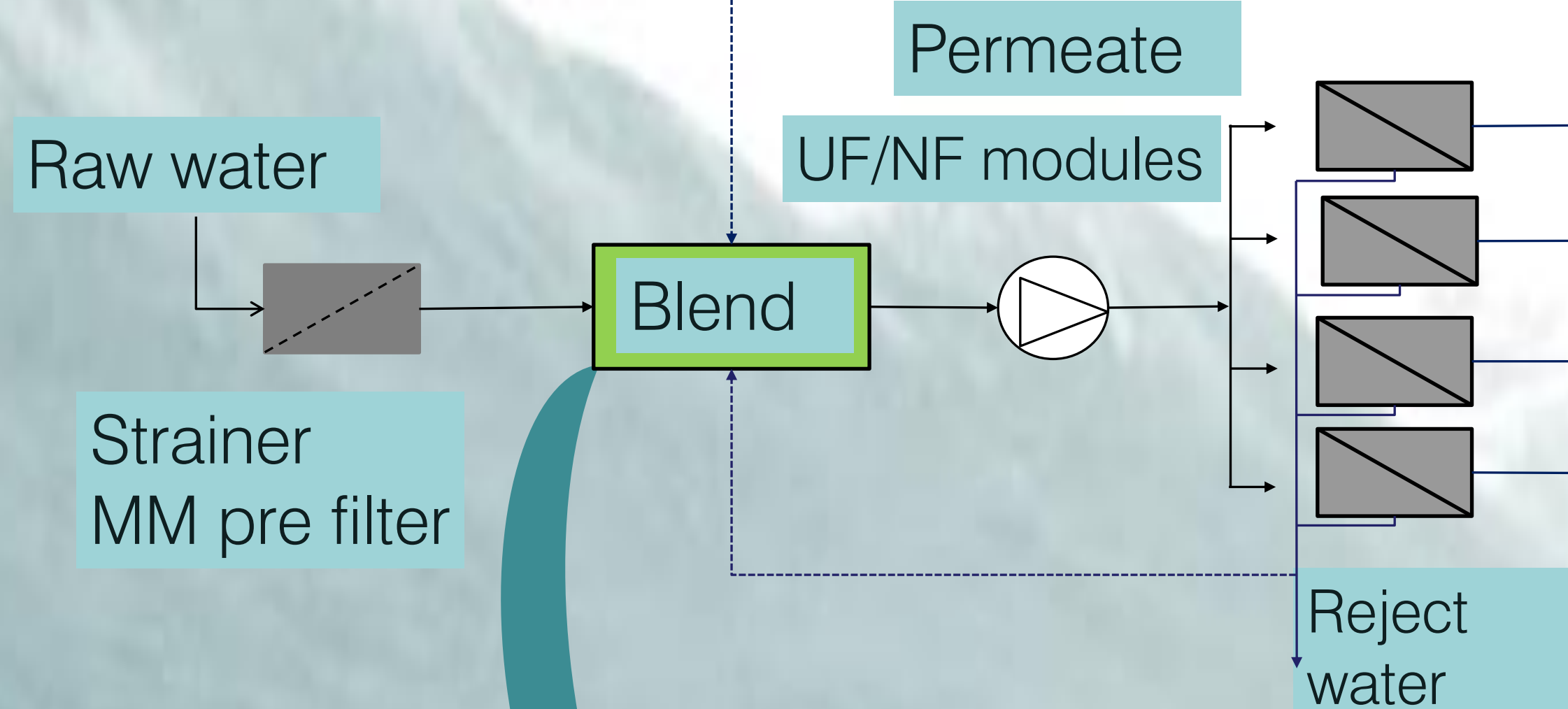
Background: The driver



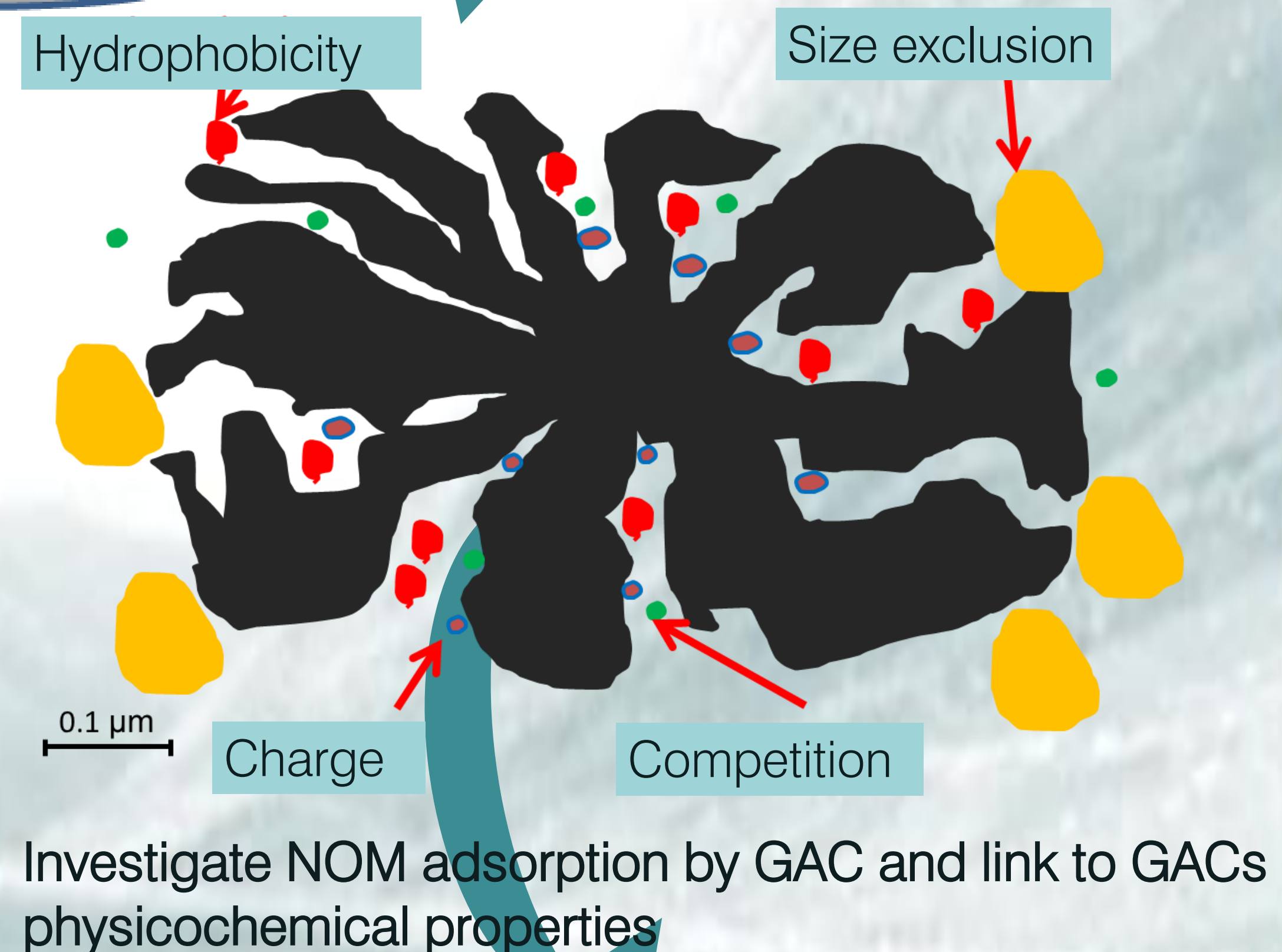
Methods and materials: The approach



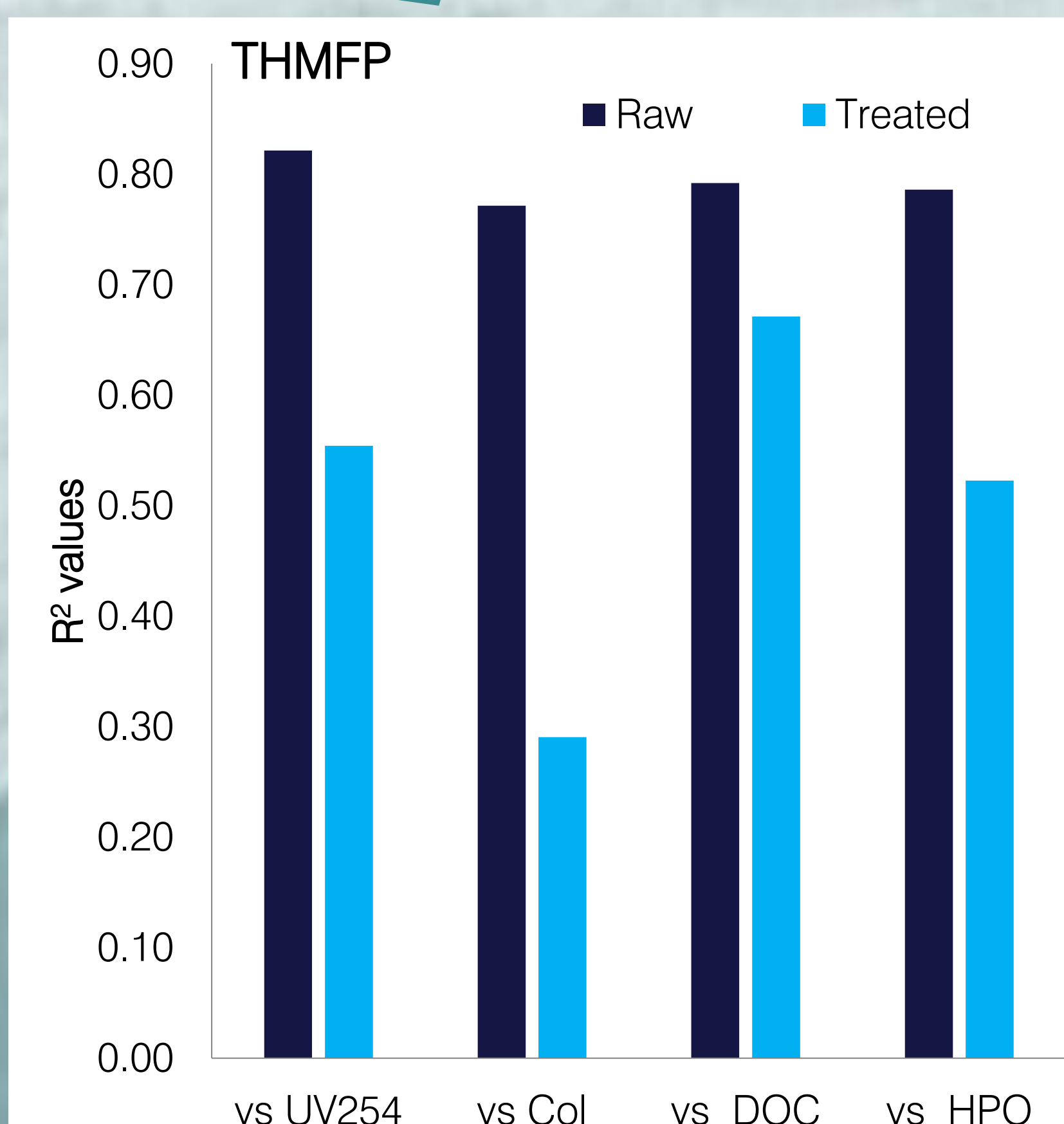
NOM characterisation including resin fractionation



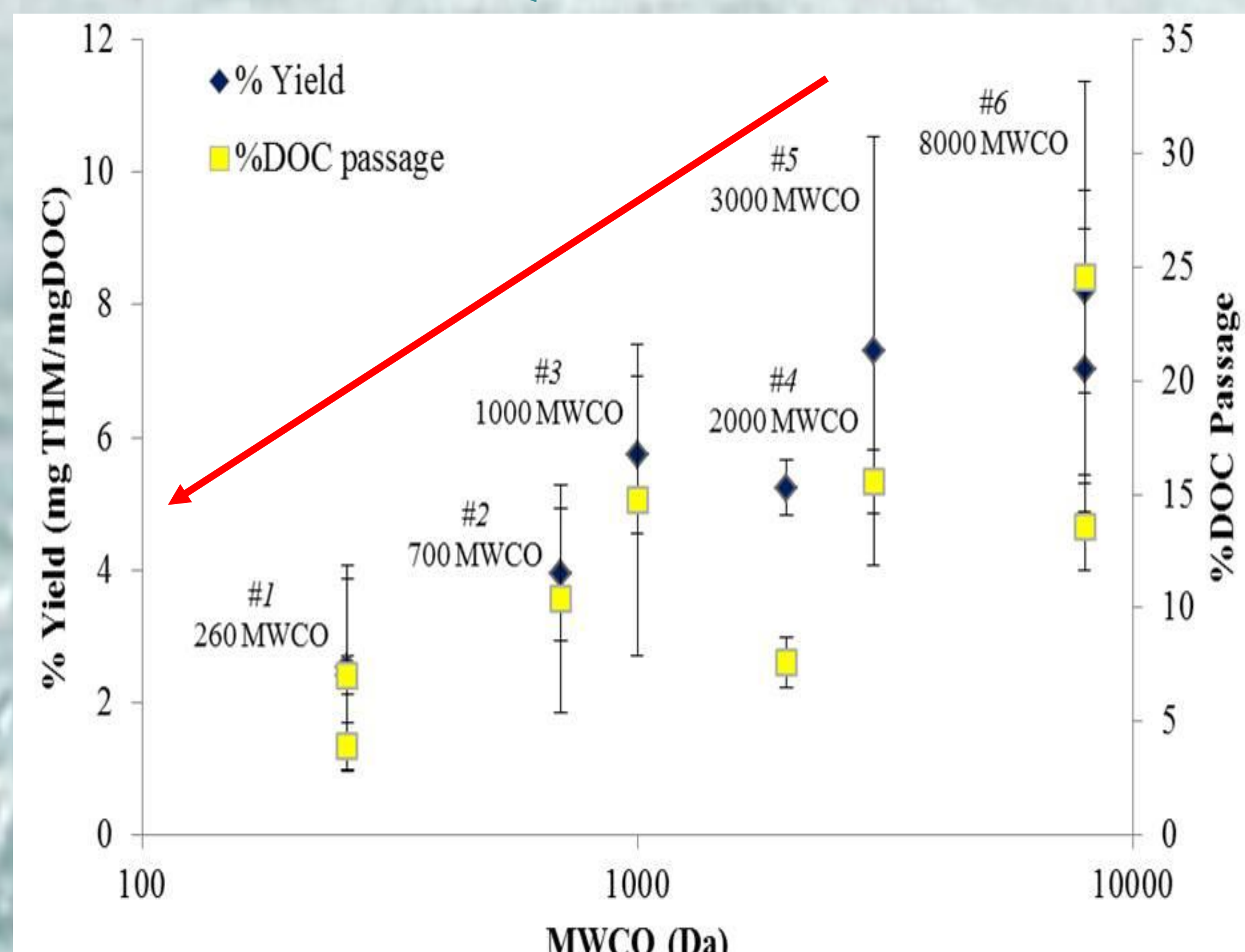
Pilot - alternative SpW membranes: Phase I SpW membrane trials at Gorthleck



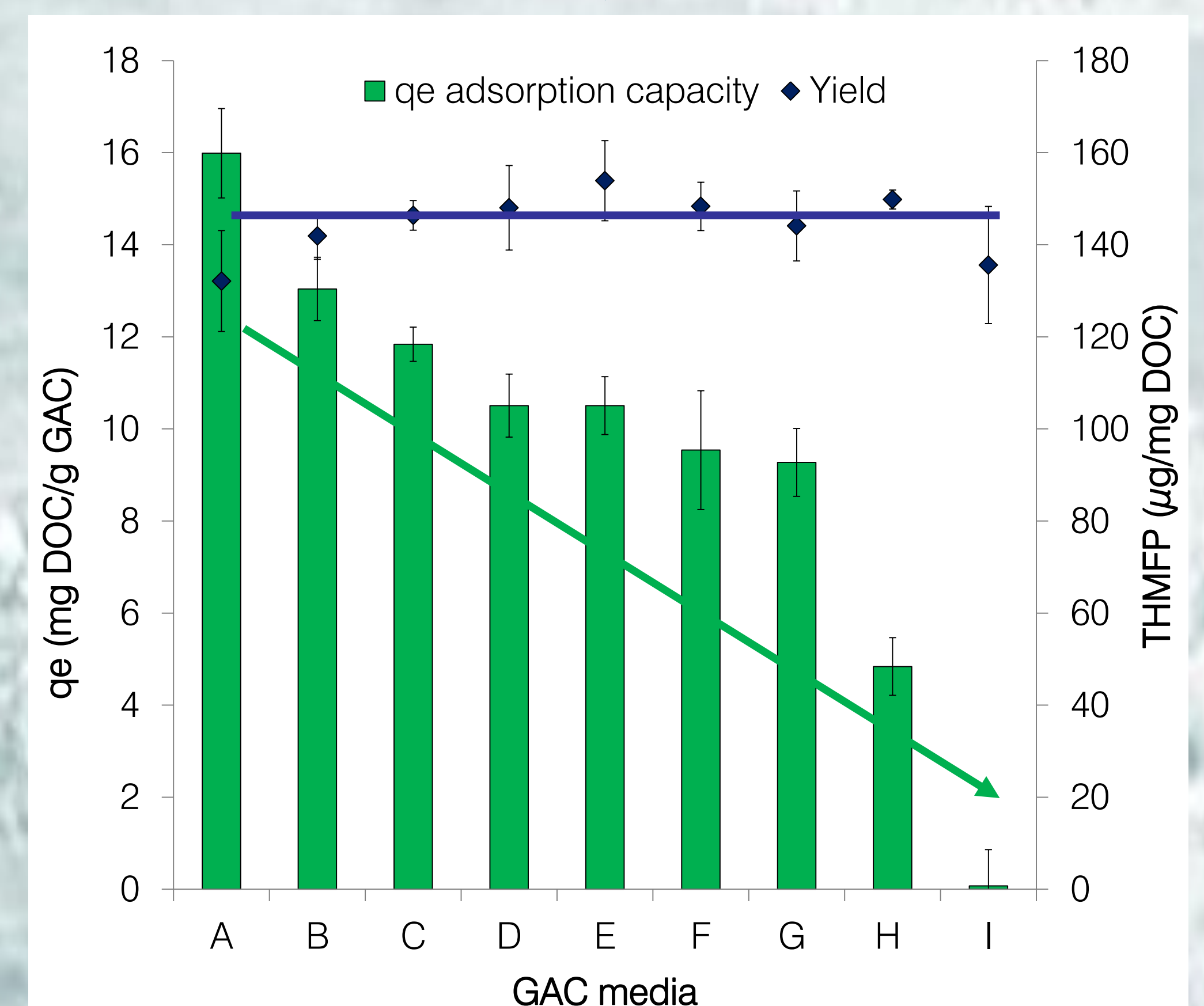
Results



Good correlations between THMFP and NOM indicators in raw water



Decreasing reactivity and %DOC passage in line with decreasing MWCO



Decreasing adsorption capacity across the range of media; no significant change in reactivity

Conclusions and further work

UV₂₅₄ as good of an indicator for THMFP as the others in raw water – useful for online raw water NOM monitoring over time. Investigate treatment optimisation tools

Alternative membrane products appear competitive: Undertake Phase II of SpW membrane trials at Gorthleck under real life conditions

There is a difference in adsorption capacity between GACs: investigate using RSSCTs and pilot

Provide an indication of the best alternative SpW membrane product and GAC media to suit the NOM characteristics of source water

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For further information please contact Dan Golea.
 Email: dan.golea@stream-idc.net or d.m.golea@cranfield.ac.uk or dan.golea@SCOTTISHWATER.co.uk
 Postal address: Room E06, Scottish Water, Juniper House, 47 Research Park, Riccarton, Currie, EH14 4AP