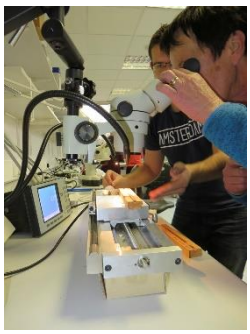
Geography Week: Reconstructing the past from biological proxies

As part of Geography Week 2015 the Geography Department at NUI Galway hosted a workshop for members of the Galway Geological Association (GGA) demonstrating how past environments are reconstructed using biological proxies. The day began with an introduction to the main proxies used by researchers in the Palaeoenvironmental Research Unit (PRU) including:

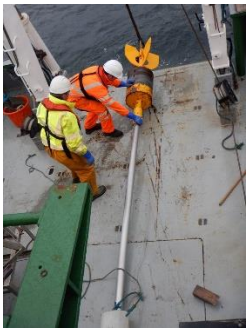


- **pollen** to reconstruct vegetation change over time,
- **chironomids** (non-biting midge-fly) to reconstruct temperature change and the impact of anthropogenic activity (including farming) on lake conditions
- marine **foraminifera** to reconstruct climate change
- **tree-ring** analysis to reconstruct climate change

The PowerPoint presentation concluded with a demonstration of different coring technologies including pictures from recent coring expeditions to obtain:

- a core from an isolated mountain lake in Glencolmcille Co. Donegal,
- a deep core from Loch Inchiquin Co. Clare
- transect cores from Lough Lugh on the Hill of Uisneach Co. Westmeath
- a marine core recovered on board the Celtic Voyager west of the Aran Islands



For the practical part of the workshop the participants were divided into four groups. A lake core and marine core were opened out in the labs and participants were shown the visible evidence for changes in the lake/ marine environments over time. Each group was then given a hands on demonstration as to how the proxies were extracted from the core, counted and identified to genus or species type using taxonomic keys. The final part of the day was a presentation on the results and proxy analysis (including pollen and chironomids) of the LL3 core recovered from the Hill of Uisneach, which demonstrated how a multi-proxy analysis can provide a depth of understanding of the impact of past human activity on lake environments in a way that single proxies cannot.

Thanks to Dr. Aaron Potito, Dr. Karen Molloy and Dr. Audrey Morley for helping put this demonstration together and especially to Jennifer Logan MSc. (in Coastal and Marine Environments) and postgraduates Guillermo Castro Camba, Michelle Curran, and Seamus McGinley who gave talks and demonstrations on the day.