



## ONE Planet Undergraduate Research Experience Placement (REP) Scheme

**Placement title:** Nutrient News: investigating the sources, impacts and control of elevated nutrient concentrations within a coastal bay of international conservation importance.

**One Planet Research Theme:**

Climate & Climate Change  | Earth System Processes  | Anthropocene  |  
Environmental Informatics

**Supervisor:** Dr Jess Ward

**School/Department:** School of Natural and Environmental Sciences (SNES)

**University:** Newcastle University

**Placement Description:**

The LIFE WADER: Water and disturbance environmental restoration project is a multidisciplinary research project coordinated by Natural England in partnership with a range of organisations including Newcastle University. The source to sea project is focussed on the River Tweed catchment where elevated nutrient levels are negatively impacting water quality in both freshwater and coastal environments. The elevated nutrient levels in the water have resulted in blooms of opportunistic macroalgae which smother the intertidal coastal bays and have negative impacts for the internationally important wading bird populations that feed at the coast. The objective of this placement is to work alongside the WADER project team to collect samples to monitor nutrient concentrations (nitrates and phosphates) in coastal streams within Budle Bay (Northumberland) which is an area of significant conservation importance (SAC, NNR, SPA, MCZ) that has been impacted by macroalgal blooms in recent years. These samples are vital to provide an insight into spatio-temporal variation in nutrient concentrations and how they influence macroalgal blooms, to assess the impact of nature-based interventions that aim to control nutrient levels within the catchment (e.g., the installation of reed beds), and to ground truth ecological models. Specifically the placement will involve:

- Fieldwork to collect water samples from coastal streams
- Development and management of a database that will collate monitoring data from sampling activities being undertaken as part of WADER project activities

The placement will allow the student to develop their transferable skills around data management and communication.

- Opportunities to write R-code to visualise the data collected.
- Have trainings sessions on using field data for model validation.
- Participation in relevant WADER project meetings.

The student will gain skills in experimental design, field and laboratory techniques and data management/visualisation, as well as valuable communication/networking skills working with a range of project partners.

**Timescale:** To be agreed at appointment but is flexible within the vacation period and will include approx. 2 weeks field data collection and 4 weeks data collation/analysis

**Itemised Budget for the Project:** Research and Training total = £500

- Return mileage to Budle Bay x 9 (@45p per mile) = £405
- Laboratory consumables (Eppendorfs, pots, pens) for sorting/storing samples = £95

Student wage @£13.45 per hour for 6 weeks = £3,357

**Prerequisites:**

Essential: Data analysis/ Data management skills

Desirable: UK driving licence and own car

For more information, please contact Dr Jess Ward: [jess.ward1@newcastle.ac.uk](mailto:jess.ward1@newcastle.ac.uk)



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