



Murray Foundation Newsletter

Grants to Support Student-Research

The objective of the Newsletter of May 2021 is to describe the activities of the Foundation and the areas of support for student-research. In this edition and future Newsletters, it is intended to also pass on messages that students have sent us on whether they thought that their grants had been useful in supporting their studies, the contacts they made that could be valuable for their research activities, for their thesis and for potential future collaboration with other laboratories and Institutes.

Publication of peer reviewed papers where the Foundation has been closely involved in student research projects thus reflecting its increasing emphasis as an Research Institute supporting original science projects.



The Foundation believes strongly in the European dimension of student training and the value of collaborative projects at all levels of studies. Working together within a European environment is immensely enriching and helping students in this context is an important objective of the Foundation.

Purpose of the Foundation

The Murray Foundation is registered in the United Kingdom as a charity (UK Charity Commission No. 1162333). The Foundation's purpose is, for the public benefit, to advance education, to encourage and support dissemination of research and technical information in the area of environmental processes:

General objectives are:

1. To support students of Universities and Institutes in the UK and Europe in developing their studies through participating in European projects related to environmental protection. For example, support could be provided to cover mission costs, participation in Congresses, project meetings etc.
2. Provide support to students who wish to participate to advanced training courses, research projects as a part of a summer course, fieldwork, and in support of a High School or University thesis. These grants are available for short-term activities that provide students with experience of value to their on-going studies.
3. Provide University Scholarships (up to 12 months), co-support European Joint Masters degrees and Erasmus Mundus (Erasmus+ 2014-2020) projects.
4. Collaborate with High Schools to provide opportunities to develop students' understanding of science in the 'real world' (including the study of Science at university) – for example, where students undertake research alongside members of universities and/or get to spend time with people involved in 'real' research projects.
5. Support mature students coming back to studies after careers in industry etc.
6. Publish research and technical information relevant to the activities of the Foundation.

Activities: January 2020 to May 2021

In spite of the very considerable problems caused by Covid-19 for student research projects there has been a steady increase in activities with the development or completion of projects by students from the University of the Algarve (with the Award of a joint PhD – University of Rabat, Morocco – University of the Algarve, Portugal), Israel, Spain and the publication of results, as well as a number of new research projects being proposed and funded by the Foundation.

The objective of Foundation is not to offer grants covering Student and University costs: there are many excellent national and international Institutes that cover long-term financing. The aim of the Foundation is to help students that are doing a first degree, MSc or PhD and looking to complete a research project for publication, or searching for the next step in their science career and where their funding is momentarily lacking. The support provided is variable depending on the research project and the advice of their University concerning the student's need.

We have found that occasionally some students are having difficulties in finding funds to pay for their research publications putting them at a significant disadvantage when submitting their work. As a beneficiary of a MF grant the student is considered an "MF Scholar" and may be eligible for support of publication costs (on advice from their Supervisor) for articles accepted in an Open Access publication of an ISI listed journal with Impact Factor of greater than 2.

As a part of our focus on University projects related to advanced summer courses and student research, we are continuing our support of the Prof. John Riley Scholarships (created in 2017) at the University of Liverpool. Although projects were suspended in 2020 Prof Jonathan Sharples (School of Environmental Sciences) suggests that there will be several grant applications this year now that general conditions are getting back to normal (see fuller description below).

We also supported student projects from the Centre for Marine and Environmental Research, University of the Algarve, Portugal; Institute of Marine Sciences (ICM-CSIC), Barcelona, Spain; Centre Scientific of Monaco; the Bar-Ilan University Faculty of Life Sciences, Israel. This allowed students to present their results and discuss their work with senior scientist as well as investigating potential future collaboration.

After the very successful meetings in Spain (Murcia 2016) and in Greece (Athens 2018), we continued to support the biannual European Symposium on Coastal Lagoon Ecosystems, that was held in Venice, January 2020. The Foundation Awards provided funding to students studying at Universities in Europe as well as from Universities in North Africa (Algeria and Morocco).

School and University Student Expedition Projects in collaboration with Operation Wallacea

Operation Wallacea is a biodiversity and conservation research organization running projects in remote locations across the world. Students from UK schools take part in these expeditions which are designed with specific wildlife conservation aims in mind – from identifying areas needing protection, through to implementing and assessing conservation management programs. The expeditions represent a real opportunity for school students to gain first-hand understanding of the function and importance to local communities of fragile ecosystems, and to take part in the collection of scientific data required to understand their evolution.

The Foundation initially developed collaboration with Opwall in 2017 and continued in 2018 and 2019. Activities were suspended in 2020 due to Covid travel restrictions! Objectives for the period 2021-2022 are to:

1. Provide opportunities to develop students' understanding of science in the 'real world' (including the study of Science at university) – for example, where students undertake research tasks

- alongside members of universities and/or get to spend time with people involved in 'real' research projects.
2. Visits to school from experts to give lectures on work being done might also be worth exploring (Run a "Scholar's" programme for academically able students; look for support from experts in their fields to challenge students and broaden their horizons).
 3. Student exchange with High Schools in Europe within a common science Network (support Summer Schools Science Networks?)
 4. Support inter High School joint student projects.

From the reports and photos of students in the Opwall expeditions of 2018- 2019 a concluding comment from Lyndsay Walsh, we believe, sums up an essential experience of these expeditions:

"I had a fantastic experience collecting this data and one of the highlights of the entire experience was having the opportunity to go into the village and speak to the local persons about what we are studying, and including them in our research. Too often environmental research excludes the very persons it is meant to benefit most. Through talking to the communities about their experience of fishing and how it has changed over the years, it gave the research added context and importance. I have done a few expeditions now and while each time I consolidate my passion for environmental science and protection, one thing in particular becomes clearer every time: it is the people who truly make the experience!"

Peru: Lyndsay Walsh - studying MSc, Trinity College Dublin, School of Natural Sciences – Geography. Project site: The lower Yarapa river - Amazon: Fishing - Stock-Abundance-Sustainability-Analysis.

Hopefully 2021 will see planning for University and School expeditions developing again and by 2022 results and photos of student projects being reported in our Newsletter next year!

University Student Science Projects:

The Foundation is particularly pleased to have received an increasing number of University student science projects proposals. The Foundation's support is based on the premise that such projects are valuable in helping students learn new procedures, collaborate on joint activities or investigate complimentary areas of their University programs that will be directly useful for their University diploma. Very often these are summer courses specializing in research techniques, participation in joint projects with other institutions, analysis of field data etc. The results being valuable for a research paper for example, as well as the student's thesis.

Scholarships in memory of Prof J.P. Riley

After discussions with Prof. J. Sharples Head of the Department of Earth, Ocean and Ecological Sciences, University of Liverpool, the Foundation created in 2017 the **Prof. John Riley Scholarships** for students of the University.

An understanding of the importance of the chemical processes of the seas owes an extremely important debt to John Price Riley, who was Professor of Oceanography of the University of Liverpool during the 1960-1980's. During this period, the development of chemical techniques needed for the understanding of biogeochemical processes became a major focus of study and along with increasingly sophisticated analytic techniques provided a progressive understanding of the function of trace nutrients and their cycling, biological activity, the role of gases, the impact of redox and PH controls, diagenesis, role of sedimentation and many other processes etc. To appreciate the mechanisms controlling such complex systems required not only advances in analytical methods but also the development of very large-scale international studies that could make use of these continually developing techniques and provide a global understanding of the role of such processes.

In 1965, volume 1 of Chemical Oceanography by Prof. Riley and colleagues was published by Academic Press, to be followed over the next 20 years or so by 9 other volumes (in collaboration with G. Skirrow, Volumes 1-4, and R. Chester, Volumes 5-10, of the Department of Oceanography, University of Liverpool).

The range of subjects treated in these volumes was vast and provided accounts in depth of topics across the whole range of marine chemical interests.

The significance and impact of the Chemical Oceanography series can be clearly seen through the international reputation of the authors, many were leading researchers in their domain, who contributed to the chapters of succeeding volumes. The fact that the series covers such an extensive period in chemical oceanographic research provides a long-term view and it is particularly instructive to see how advances in techniques and understanding occurred over the intervening years. The reputation and role of the Oceanographic Department of the University of Liverpool today, as a center of excellence and stimulus in significantly developing advances in oceanography is a major tribute to the vision of Prof. Riley.

For 2021 there are 2 - 5 Scholarships available on a competitive basis. The Scholarships are each worth £1,000. The funding can be used to help support a placement project, internship or visits to other research laboratories during the summer breaks.

Research Projects:

As in earlier years the Foundation has continued supporting research projects on the following themes:

1. Coastal Lagoon Ecosystems
2. Coral reef systems, their functioning under present and probable future Environmental changes
3. Shelf Seas, their importance for the global ocean system and their social and economic value (Professor John Riley Scholarships)
4. Desertification and Agriculture, future management of water resources.

Finally, some photos received from UK School students during 2018-2019

